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JULY 1986
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ISSUE 78

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- Take Your Portable Computer On Vacation
- Amstrad PCW8256 Word Processing For Everybody
- Spotlight On Medical Resources Part II

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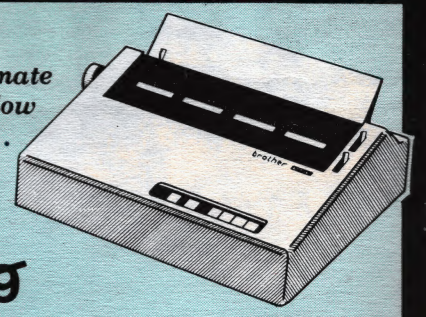
Get the ultimate performance in a low cost daisywheel printer with. . .



brother HR-10 DAISYWHEEL PRINTER

Save $270 off list JUST ~~$239~~

The NEW **brother** HR-10 gives you superb quality and advanced technology from the company that has long years of experience in electronic office machines. The HR-10 is not only a high quality unit but a printer that will last with a snappy 120 word per minute print speed. It uses the renowned **brother** cassette daisywheels for ease in changing and the **brother** mess-less ribbon cassettes. And with the text reprinting feature you can set the HR-10 to continuously print out whatever is stored in the 2k memory buffer — all this at the touch of the front panel control. Control codes emulate Diablo 630 codes for universal compatibility with most software. Other standard, time-saving features include super and sub scripting, automatic underlining, and bold printing giving your printout a professional quality cleanliness. The HR-10 is capable of printing most 4 part forms and accepts a paper width up to 11½ inches. This new addition to the **brother** HR series represents an outstanding value for a personal daisywheel printer.

Make your office beautifully efficient with. . .

brother HR-25 DAISYWHEEL PRINTER

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brother's HR-25 daisywheel printer has been specially engineered to keep pace with your high volume while producing clean, clear pages of the most beautiful letter quality. Since the HR-25 incorporates a 3k buffer and can print out bi-directionally at a rate of 23 cps, output will never lag behind demand. Once into the buffer, information will be held for repetitive printout with the text reprint function — originals can be produced without end. Previously if you desired to stress certain areas of a text you had to underline the area or type it in uppercase letters. The HR-25's bold type function and red color printout make those stress points literally jump off the page, an especially welcome feature for important reports and letters. Character pitch is selectable among the settings of 10, 12, and 15 positions per inch in addition to proportional spacing. Other features such as super and sub script, auto underlining, carriage skip movement, and easy drop-in ribbon cassettes and daisywheels put the HR-25 ahead of the competition. It is equipped with either a centronics parallel or an RS-232C serial interface and DIP switches conveniently located for easy access, the HR-25 is easily adapted to your computer system. With **brother's** renowned reliability and easy add-on accessories (cut sheet feeder, tractor feed) the HR-25 will increase your office efficiency to unexpected levels.

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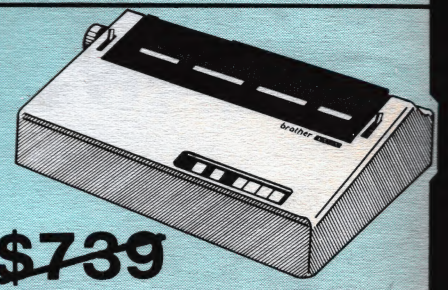

brother HR-35 DAISYWHEEL PRINTER

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One of the main concerns in a high output office is putting out the work required without concern. **brother's** HR-35 will not only print out whatever is on your word processor's mind with the finest daisywheel beauty, but will print it out with a speed (32 cps) and accuracy that will keep your work moving in the right direction. Because the HR-35 incorporates a big 7k (23k optional) buffer memory, your computer will be free for other operations almost as soon as you give it the print command. And that buffer won't stay full for long, thanks to HR-35's 32 character per second print speed and bi-directional logic seeking carriage movement. But the HR-35 does not give up efficiency for speed. Since the printer head comes to a full stop at each strike zone, the high quality of the daisy wheel is taken full advantage of. HR-35 presents you with a host of other welcome features such as two color and bold printing, just the thing to make your text stand out. Extras include super and sub script function, auto underlining, proportional spacing, text reprinting, clear buffer and easy to use front panel control for all the main operations. HR-35's back panel allows either centronics parallel or RS-232C serial interface connection. DIP switches are easy to access and attachable options such as the tractor feeder and cut sheet feeder offer increased utility. And it goes without saying that the HR-35 uses exclusive **brother** daisywheel cassettes and ribbon cassette systems for simpler, mess-less changes. **brother** HR-35, a high output printer.

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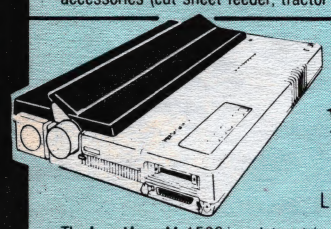

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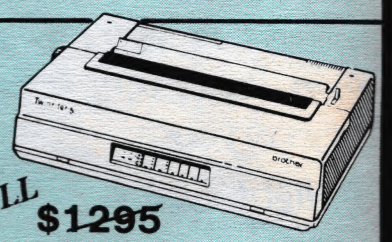
The **brother** M-1509 is a dot matrix printer designed to offer reliability, economy, and quiet, easy operation to users of personal or small business computers. Normal print speed is a fast 180 cps (pica), but the M-1509 also provides handsome Near Letter Quality printing at 45 cps. A variety of character sets are available, and the high-density bit image capability produces impressive graphics.

The M-1509 also incorporates a number of cost- and labor-saving features. The large memory buffer releases the computer for other tasks while printing, an optional cut sheet feeder reduces paper-handling time, and the one-inch paper cut function economizes on paper. In addition, the M-1509 is supplied with character sets and control codes compatible with those of the IBM PC and the Epson FX series printers, for easy interfacing with a broad range of computer equipment.

Above all, the M-1509 is designed for people. It is exceptionally slim and light, with conveniently consolidated controls, allowing it to fit easily into a fully-equipped work station without wasting either office space or valuable operator time. It is also quiet – a fact which, though often overlooked, is of crucial importance in maintaining an efficient, industrious office environment.

Get the first printer in the world to offer both daisywheel and dot matrix printing with. . .



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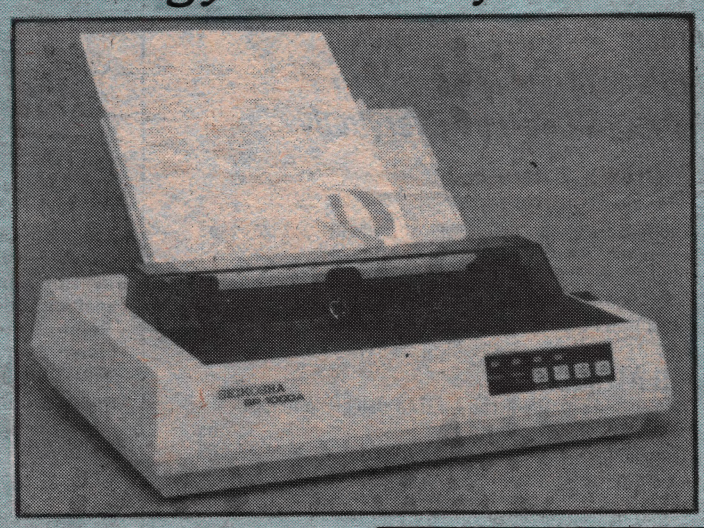

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789:;<=>?@ABCDEFGHI
/0123456789:;<=>?@ABCDEFGHI
789:;<=>?@ABCDEF
<=>?@ABCDEFGHIJKLM
789:;<=>?@ABCDEFGHI
EFGHIJKL
789:;<=>?@ABCD EFGHIJKLMNOPQ
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In order to keep your loyalty we at MidWest Micro are always looking for more printer and less price. In that search we've found for you a real gem in the price/performance arena. The Seikosha SP-1000 is made with the same precision and durability you have come to expect from the quality leader in the watch industry – Seiko.

The SP-1000 is completely full featured with the latest advances incorporated. It provides excellent near letter quality printing with a dense 24 by 18 dot density. This equates to 41,472 addressable dots per inch and gives superb "Typewriter like" printing. Other printers with resolution this high cost hundreds of dollars more.

With the SP-1000 your computer can print 40, 48, 68, 80 or 136 characters per line. It can print 35 separate character styles including 13 double width and 3 reversed styles. You get Pica, Elite, Condensed and Italics – plus true superscripts and subscripts. All this can be done automatically, through easy commands right from your keyboard.

You get all these great features plus much, much more with the SP-1000 and there is a model made to fit your application. (This saves further in interfacing costs and problems). So call today to order or ask for a free brochure and print sample.

SP-1000 Series

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- Paper empty detection.
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- A variety of functions including Underline, Bold print, Double striking.
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- Automatic printing.
- Optional intelligent serial interface (#SP-80010)
- Downloadable Characters.
- Standard 1.5K buffer.

Character Font			Character Structure (H x V + Space)	Maximum Column Number	Character Spacing (Character/Inch)	Print Speed (Character/Second)
Standard Character	Standard	Pica	*12x9	80	10	100
		Elite	*12x9	96	12	50
		Condensed	*14x9	137	17	70
	Near Letter Quality	Pica	*24x18	80	10	20
		Elite	*12x18	96	12	24
Italic Cursive Character	Standard	Pica	*16x9	80	10	100
		Elite	*16x9	96	12	50
		Condensed	*18x9	137	17	70
	Near Letter Quality	Pica	*32x18	80	10	20
		Elite	*32x18	96	12	24
Graphic	Single Density Graphic		nx8	480 dot column	—	600 dot column
	Double Density Graphic		nx8	960 dot column	—	490 dot column
	Double Speed, Double Density Graphic		nx8	*960 dot column	—	600 dot column
	Quadruple Density Graphic		nx8	*1920 dot column	—	*980 dot column
	640 Dot Graphic		nx8	640 dot column	—	326 dot column
	576 Dot Graphic		nx8	576 dot column	—	294 dot column
	720 Dot Graphic		nx8	720 dot column	—	367 dot column

*Indicates that the specified figure includes half dots.

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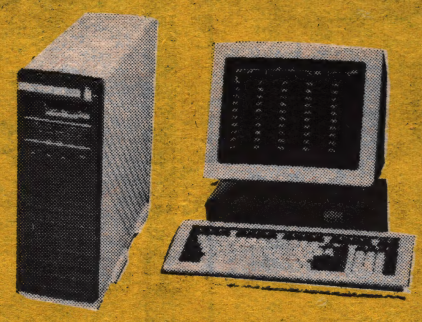

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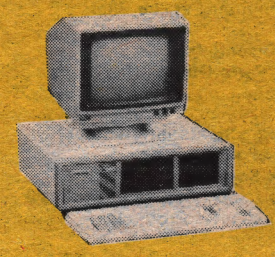

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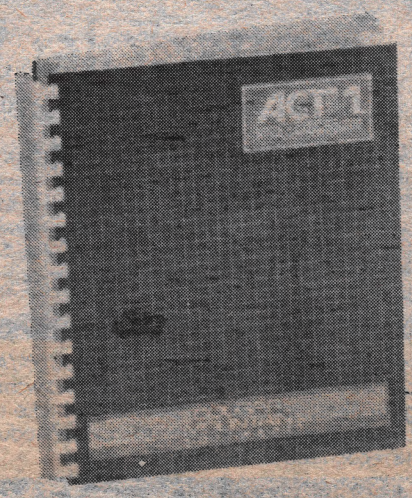

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AMQ-286 Powerful Portable From Amqute

by Rich Fields

After looking at an entire exhibition hall full of IBM clones, they all begin to blurr into one generic computer. After a while you hardly stop to look at the next booth full of them. I am glad that I stopped at the Amqute Computer Corp. booth at the West Coast Computer Faire because there I found a gem of a transportable computer, the AMQ-286. This is only one of a family of transportable MSDOS computers including the AMQ II, a PC/XT clone with two floppies, 740K of RAM, a color graphics board and a built-in 9" monitor. The AMQ III is identical but adds a 10 Mbyte hard disk and the AMQ IV has a 20 Mbyte hard disk. The AMQ-286 is the model we tested. It is both an XT and AT clone in one package.

The AMQ Package

Picture a small transportable computer, only 17.5" wide by 8.5" high by 14.5" deep about 2" overall smaller than the new Compaq 286 Portable. It weighs about 30 lbs. but is not uncomfortable to carry.

The front door is removable after opening two slide latches and is the reverse side of the keyboard. Behind the keyboard is the front panel containing the 9", 80 column by 25 lines CRT. A 1/2 height 360K floppy and the 20 Mbyte hard disk drive are mounted next to the display. On the other side of the CRT there is a vertical slot for storing 6 disks. There are folding feet under both the computer and the keyboard to elevate them to a comfortable working height. Wonder of wonders, the coiled cord connecting the keyboard emerges and retracts into a hole in the front panel. There is a sliding panel on each side of the case. The panel on the right covers the I/O Compartment which contains one DB-25S female, parallel printer connector; one DB25P, male, serial RS-232C connector and one DB9 female RGB video connector for an external color monitor. In the I/O Compartment there is access to the tray used for storing the power cable. This storage space is a very nice thing to have on a portable computer.

The left-hand sliding panel covers the Power Compartment containing the AC power receptacle, the AC power switch, a fuse holder and the CRT intensity control. There is also a hard reset switch for the computer. The outlet for the cooling fan also is in this compartment. The AMQ-286 is designed to operate on either 115 VAC/60 Hz, or 220VAC/50 Hz however since changing the input power also requires a change of the cooling fan, only the factory can make this adjustment. Access to the inner compartments is by means of an access panel on both the top and bottom of the cabinet. These are easy to remove when necessary. In all the Amqute is a thoughtfully designed machine. It looks like someone looked at all the previous portable designs, took their best features and then added some more!

What's Inside?

The attractive molded plastic case hides a heart of steel. The AMQ is equipped with a metal frame shock mounted to the cover. Additional shock mounts secure the disk drives to the steel frame to isolate the bumps and strains any portable is subject to. The drives and motherboard are mounted inside.

There is a seal on the top cover of the inside frame which reads "AMQUTE—BROKEN SEAL VOIDS WARRANTY." Wait, this is unusual, what do we do if something goes wrong? The answer is; this computer carries a ONE YEAR, parts and labor warranty. You send it back to Amqute or to their designated third party maintenance company and let them worry about it. Amqute has offices on both the east and west coasts. What if you want to expand the computer? Well you can get to the expansion slots by removing five screws that secure the storage tray in place. In the AMQ-286 there are two open full length slots. You could add an internal modem board such as the Hayes compatible half-card sold by Amqute. You could also add other cards but consider that this computer comes with 2.704 Megabytes of RAM, a 360K floppy and 20 Mbytes of hard disk storage. You can expand the RAM to 4.704 Megabytes but this requires the installation of a piggyback memory board on the Pfaster 286 coprocessor. This operation could be done by the user but factory installation is preferred. When you gain access to the expansion slots, you also have access to the switches required to set system configuration. With the AMQ-286 the factory set modes will usually remain unchanged.

The thing that makes the Amqute-286 into a powerhouse AT clone is the Phoenix Pfaster 286 coprocessor and its software. The Pfaster 286 is more than just another "plug-in board," it is actually a second motherboard plugged into the 8088 bus. It contains the 80286 CPU with provision for a 80287 coprocessor. It has an 8 MHz processing speed, 2 MHz of RAM, 16KB of EPROM expandable to 256K.

The Pfaster-286 hardware and software combination by Phoenix makes a PC, or XT into a computer with the best features of the AT—speed and expanded memory addressing. When in use the 80286 CPU functions as the system CPU and to process data even faster than a true AT. This is done by allowing the 80286 CPU to function as the system CPU and running it at a clock speed of 8 MHz with no wait states rather than the AT's clock speed of 6 MHz with one wait state. The user can switch back and forth between the 8088 mode and the 286 mode completely in software. This would be done to use some important machine dependent programs. For example, we use a program to "clean" Wordstar files. This was written in Turbo Pascal and compiled. It will not run under the 286 mode, but it runs just fine in the 8088 mode. The same problem is encountered with many copy-protected programs which use timing loops and require the 8088 CPU. In any event you can switch 8088 and 286 using a short utility program without re-booting the computer, all you have to do is type "pfast" to get into 286 mode, or "pslow" to switch back. You can also use a massive RAM disk which again increases the speed of operation in almost any program that uses frequent disk access.

We used many programs to test the AMQ-286 including Wordstar, SuperCalc III, Lotus 1-2-3, Flight Simulator and with no trouble. The speed of text formatting and spreadsheet calculation in the 286 mode was impressive and the "pslow" 8088 mode ran like any other XT clone.

What We Didn't Like

I don't expect to like everything about every machine I test, but I often find that otherwise excellent computers are marred by stupid defects. This is the case with the AMQ-286. While I worked with the computer I found that the only thing I did not like was the placement of the function keys along the top of the keyboard. The keyboard itself was a bit mushy for my taste, but I am a pill about keyboards. Even the display was not too bad for a color board running a monochrome monitor. When I hooked up a color monitor it was fine. I was really getting to like this machine more than any transportable I had ever used. Then the flaw made itself known.

When you plug-in the power cord, the power socket is not deep enough and the plug does not fit securely. If the computer, or the cable moved the plug became disconnected. I was a little annoyed when I lost this article in the middle because the machine died, but I blamed myself. The second time it happened, the machine died and then come on within a second. This time it must have created a huge spike that destroyed a chip or two because the keyboard would no longer talk to the computer. I called Amqute and they told me that this problem has been corrected on the new production machines. The machines they sent *Computer Shopper* and *InfoWorld* were early models. (They spotted the problem also.)

Conclusions

Outside of the malfunction with the keyboard, I love this computer. At $3,995 it is more than I can afford, but cheap for what you get. The Compaq 286 Portable sells for much more and gives you less RAM and no 8088 mode. In our opinion the AMQ-286 represents a powerful package of computing power at a very reasonable price. It is manufactured in Sunnyvale, Ca. although, like most computers today it contains many imported parts. With the one year warranty the Amqute Co. appears to have given the problem of maintenance a great deal of thought, almost like they expect to be around a long time. ●

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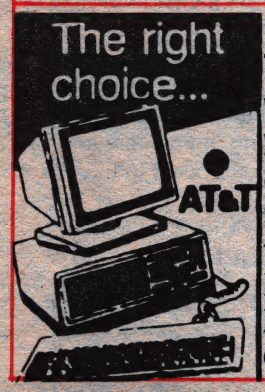

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Take Your Computer On Vacation

by Gene Bethold

As the summer rolls around, we start to emerge from our computer rooms and think about vacation. Soon the covers will be placed on the PCs at the office and home and off we will go to the beach, mountains and the rural areas where we change our life style for a few weeks. Some of us will travel to far away places by air, car or ship and in most cases our computers will be gone from our minds.

For others this will be a time for taking our computers along to do some of the things we can't do during working hours, or on weekends. Such things as writing that great new game program, or learning to use the new graphics, or music composition system. For others, the urge to write the great American novel will require the use of a computer and word processor. Then there are the people who need to be in touch with the office while they are living at the vacation area. They might take their computer along to use the modem and electronic mail. One summer I lived on a beach island and devoted my time to learning APL. A busman's holiday, perhaps but it took the concentration I could never use at the office, or at home after work.

We accept our computer as a part of our environment as long as it gives us no trouble. When we start to travel with computers we suddenly become aware of the fact that they are sensitive machines which require special supplies and a very specific power scource, which may not exist in areas where we commonly go on vacation. There is also the human condition where our computer may not be welcome by people who otherwise welcome us.

If we cross international borders in the course of our travels, carrying a computer might cause us problems we have not prepared for. There also may be problems if we return to the United States with a computer made in a foreign country.

Here a few tips and cautions that will help you if you travel with any kind of a computer.

There are three kinds of computer systems you might take on your vacation:

1. Desk Top Computers

First there is your desk top computer that you use all year at home. In this case you are going to a summer location and you will pack your system in boxes and either take it in the car with you or ship it to your summer home.

If you are going to ship it, be sure you use the boxes it came in, and use the original foam plastic shock spacers. If you have disposed of them, be sure that you use a secure carton with enough room to pack several inches of plastic packing material around it. When you make out the shipping papers be sure to insure each individual box for the value of its contents. Don't place the total value of the system on one box. No matter how much insurance you place on contents, you will only get damages based upon the loss of that individual box. Be sure you have documents giving the price you paid for each of the components of your system. If your packing cases have "APPLE," or "IBM" or whatever printed all over them, cover the names with paper or something. You don't need to show the world what is in the shipment, or what has been received at your vacation home.

If you are transporting the system by car, keep it in the trunk, out of sight, or cover it with a tarp in a truck or station wagon. Be sure it is securely fastened in place.

If your system is insured on your homeowners policy, or on a computer policy be sure that your broker or agent is informed that you will be moving it to another location. Be sure your policy covers the move and the new location. If such coverage requires a rider on your policy that costs extra, its worth every penny of the price.

Power in vacation areas is often not as stable as it is at home. It is subject to outages and brownouts. Always take a line stablizer and lightning protector with you to install in your power source. It is also necessary to protect your telephone line against lightning. Huge spikes resulting from a strike on a telephone line have been known to destroy a computer and attached modem.

Keep your keyboard and computer covered when not in use. Blowing sand and dirt can destroy a computer faster than anything I know. Heavy humidity is also a danger to any electronic device.

At home the humidity is reduced by air conditioning, but at a summer residence it is often not available or turned off much of the time. Don't use your computer next to the swimming pool.

Be sure you take a good supply of ribbons for your printer, paper for print out and fuses for the computer and peripherals. Take enough floppy disks along. None of these things are available in many beach or country resorts.

Also remember that you will have to go through the same trouble to get your computer system home at the end of the vacation.

Perhaps you should leave your desk top computer at home and buy a portable for your vacation.

2. Portable Computers.

There are two kinds of portable computers. First are the ones that are really desk top computers in portable cabinets. These are now often called "Transportables" and that name is closer to their application. Typical are the Compaqs, Osbornes, Amqute, Heath Zenith and countless others. Everything I said about moving desk top computers applies to transportables except you usually lug them along with you.

If you travel by air, you can be in real trouble if you check the computer through as baggage. Find out the measurements of the area under the seats and in the overhead racks, it is different on every airline. Transportables are often too big to fit under your seat, or to be put in the overhead racks. Many travelers end up by keeping them at their seat with their legs wrapped uncomfortably about the case. Then you have to fight with the flight attendent about the computer at take off and landing time. Some travelers buy a seat for their computer and wrap a seat belt around it. Expensive but effective.

If you take your transportable computer on a trip, it is a good idea to buy one of those wheeled carts that fold up and take it along to haul the computer. Moving a 30 lb computer along from place to place will tend to make you lopsided.

Since it is so hard to carry the transportable computer, what are you going to do for a printer? There are now small printers made by Epson, Kodak and many others. These can be battery or line powered but their advantage is printing power without weight. However the printer is just one more thing to take along and to worry about. Does it need special ribbons, cartridges, paper? Not all these supplies are available except in large cities. If you send for them by mail, your vacation will be over by the time you get the supplies.

3. True Portables.

Starting with the TRS-80 Model 100, we were able to take a real computer with a full sized keyboard and meaningful compliment of memory along on our travels. Before that Epson had pioneered the field, but the display was too small and it expected you to use a mini-cassette for data storage. The Model 100 started the real portable revolution and many great machines have followed in its tracks. You can now get true MSDOS, computers with one or two disk drives and great amounts of RAM. These machines are capable of running standard MSDOS software, talking on the network and directly contacting other similar machines via telephone. Almost every major computer company makes one or allow its computer to access one. Portables with megabytes of hard disk storage are just around the corner. In fact Morrow's Pivot III equipped with a hard disk drive was ready for release when that company filed under Chapter 11. I am sure it will come out anyway.

There are many things you must think about when you take one of these portables on vacation. First, even though they are not very heavy,

continued on page 20

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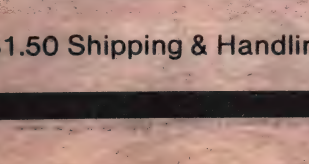

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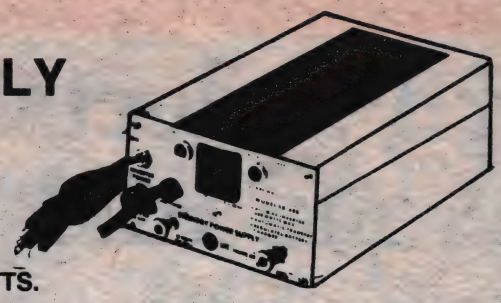

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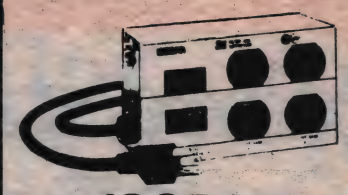

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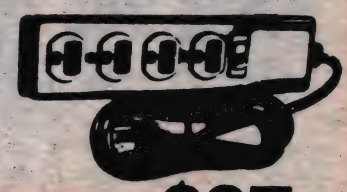

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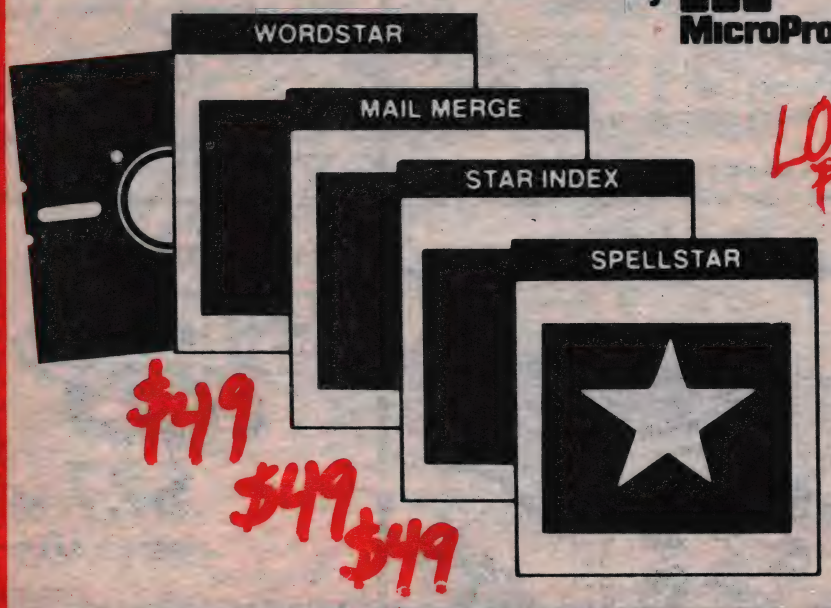

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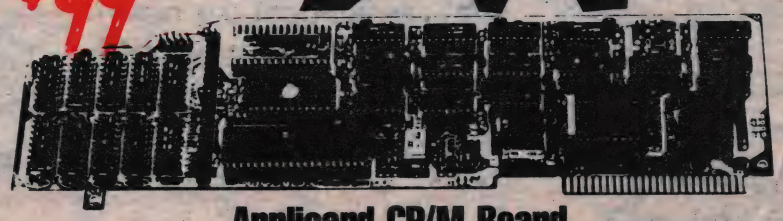

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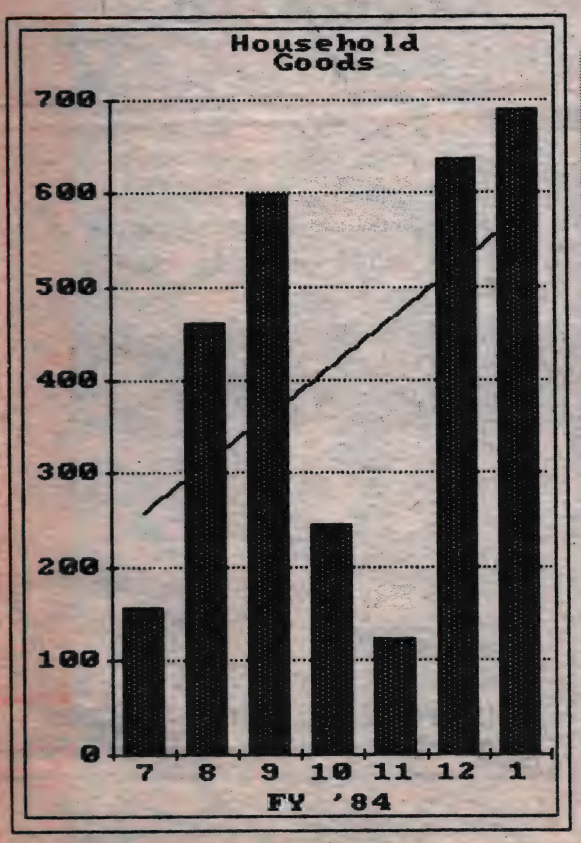

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Editorial

By Stan Veit

At the Comdex, Spring show in Atlanta I received something that I have been missing since I was Computer Editor of *Popular Electronics Magazine*. It is called Respect. It seems that this magazine has been thought of as "that Yellow Sheet" for so long that people do not believe their eyes when they see it as it is today, one of the largest publications in the industry. For a long time our account representatives faced a turndown by the media buyers because; "your readers are just hobbyists." They told us, "we want to sell to business users not hackers." The former president of Franklin Computer was an old friend of mine but he told me, "I am sorry Stan, your readers are just not the people we are trying to reach." I don't know where his people lived, but he never found them! Instead we sold his computers to our readers for the new Franklin Computer Co. But I am getting away from my story.

Respect, it seems is sold by the pound. The big fat issues of *Computer Shopper* must be better than the older issues because they have so much more advertising in them! I wonder why? The editorial is about the same, our readers are the same "hobbyists and hackers" we had before. True we have had some nice covers and new columns but that could not have made such a difference. I know the reason and the rest of the industry is just finding it out.

You folks, our readers, are the intensive users of computer equipment and software. You buy things and influence the purchase of computer related things in the companies where you work. You are not afraid to buy from mail order firms, you are willing to take a chance on something new as long as it performs and saves you money. You are the best that any magazine can offer as potential customers to firms with things to sell.

Because the industry now recognizes our relationship, *Computer Shopper* has gained respect. We hope that we will always deserve your support. At Comdex I personally was pleased by the many readers who came to our booth and expressed their feelings about *Computer Shopper*. Most were positive, some not so positive. I listened to them all and tried to help those who needed help. I deeply value this close relationship with our readers. Thank you, friends.

Walking around the show floor, I met John Dvorak who told me that he was moving his column to *PC Magazine* from *Infoworld*. I will miss his column every week, but I suppose I can wait until the end of the month. That will leave Spencer Katt in *PC Week* as the only weekly rumor monger.

I was invited to the *PC World* party at the High Museum in Atlanta by David Burnell. There I had the pleasure of again meeting Ed Roberts, the man who invented the Altair and the S-100 Bus. Many people are called "The Father of Personal Computing," my friend Les Solomon among them. If you ask Les he will say it was Ed Roberts and he should know. Anyway seeing Ed and Paul Terrell and David Burnell made the evening one I shall long remember.

At Comdex, the FCC had six of their agents going around looking for computers that were being sold in violation of FCC regulations. They found a lot of them and issued violations to the firms. What is being violated? It is the FCC regulations covering the generation of Radio Frequency Interference (RFI) by electrical equipment. These regulations are several years old now and have not been enforced too much by the commission. The manufacturers of equipment in the United States submit the results of testing by labs on their equipment and receive certification. Importers of PC clones have been very lax in complying with these regulations and the government is really cracking down. Frankly I think this bureaucratic witch hunting is pointless if they are ally concerned with RFI. We all nerate interfering signals when we use computers and the suppression of this interference of RFI at the source has never succeeded. You have to build your TVs or radios to reject it at the receiver and then try to keep it low at the source. One problem is that since we have exported our entire TV set building industry to the Orient we do not have much control over their spurious signal rejection capabilities. In fact many of these El Cheapo TV sets are themselves great generators of RFI! As for the computer users, every time we extend the main bus with ordinary ribbon cable we are broadcasting RFI. Almost every external disk drive I have ever seen is connected to the computer by an unshielded ribbon cable. Meanwhile the Feds are slapping violations on PC clones who haven't submitted the proper paper work.

By the way, very few of the U.S. made, or imports which are certified by the FCC and are perfectly shielded against radiation of RFI, are free from RFI conducted on the power lines, or ground lines. Those are among the biggest sources of electromagnetic interference that there are.

Personally I think that the entire FCC flappdoodle grandstand act at Comdex is part of a bureaucratic grab for power. The more things they must protect us against, the bigger the budget. With the ax swinging in Washington these days they needed a new cause and what is a better target than imported PC clones? If they had their way every personal computer would have a tag with 100 government inspections and the paperwork would cost more than the computer.

I hate to bring this up but I must warn you about a problem we have with pirates who sneak into our classifieds. Several of our readers wrote us about a vendor who offered innocent software in the classifieds. When people ordered it they also received a three page list of pirated software this character had for sale. We took his ads out of *Computer Shopper* and turned his lists over to The Software Publishers Association. He then stopped being a pirate and simply became a crook, he sent nothing to people who sent in money. We have advised victims to write to the authorities about him, (we can't because he did nothing to us). We are watching to make sure he doesn't pop up under another name. The point of all this is to tell you to be careful when you answer ads from old issues. Although we took this crook out of our magazine, his ads are still in old issues and people do not throw out old copies of *Computer Shopper*. If you are in doubt about an ad, call our Customer Service representative. We can tell you if there are any complaints against an advertiser. ●

Amstrad PCW8256 Word Processing For Everybody

by *Computer Shopper* Staff

The Amstrad PCW8256 is really a Z-80 CPM computer with a NLQ printer and a video screen, but don't tell this to the folks who use it, it might make them nervous. They think of this clever little system as a word processor that they have no trouble operating and which takes the place of an electric typewriter.

The system is made by Amstrad a British company who is one of the leaders in personal computing in the UK. (They also just bought what is left of Sinclair computers.) It is an unusual design with the keyboard and printer plugging into the monitor unit. At the right side of the CRT there is a slot for a disk which is somewhat smaller than usual. Upon closer inspection this turns out to be a 3" hard shell disk, a size that is scarcer than hen's teeth in the U.S. The disk supplied with the system contains the Locosoft Word Processor system on one side and CP/M Plus on the other. The CP/M side also contains BASIC, CSX Graphics Environment and Dr. Logo. For most of the folks who buy the PCW8256, the CP/M side of the disk will always be a mystery.

Part of the system is a small dot matrix printer which produces a fair draft printout and an excellent near letter quality printed page. It will accommodate either single sheet paper or tractor fed continuous forms.

The PCW comes in a big box, complete and ready to use after connecting the printer and keyboard cables. The system is imported by Sears World Trade and it will be sold in the United States for $799. It is intended to be sold in business machine dealerships rather than computer stores and it takes the place of an electric typewriter.

In spite of Apple Computer staking out "the rest of us" as the marketplace for the Macintosh, there are tens of thousands of folks for whom the Mac is much too complicated. For them the Amstrad PCW might be ideal. To test this idea we decided to use one of our staff who is "computer innocent," but not a computer phobe. Our company, Human Resources Director (newspeak for Personnel Manager) was willing to try it out. We unpacked the box which was almost as big as her office and set up the system but we did not plug it in. Just by reading the simple operations manual, she had the system completely operational in fifteen minutes. This included connecting all cables, setting up the printer and installing the tractors and using the disk to bring up the word processor! In a few minutes more she was producing a letter. Then after half an hour she was back with a problem. It seems the CRT flickered so badly that she was starting to get a severe eyestrain.

We took down the system and repacked it into the big box. When we called the PR company who sent it, they told us that something was wrong and they would send out another unit.

When the next big box arrived, the HRD lady was too busy with her own job to test any more computers for us. So we gave the system to Peggy Barnes, Asst. Publisher of *Video Life*. Peggy likes to write everything out in longhand so she makes an ideal tester for such a system.

Once again she had the system up and running in a very short time. Peggy also made a back-up disk and was exploring all the complexities of the word processing program, Locosoft, which by the way is not bad. The only problem she had was ink marks on the print paper. This turned out to be a misinstallation of the printer ribbon which was fixed in less time than it takes to tell about it.

One problem that persisted was the flickering on the CRT. This was much less noticeable when there were words on the screen and when you sat close to the screen, but it was there. To someone who is used to a rock stable display, this would make the system unusuable. It did not seem to bother Peggy at all. Within a few days she

continued on page 20

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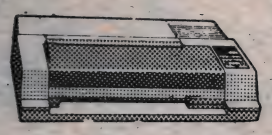

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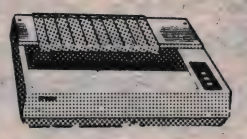

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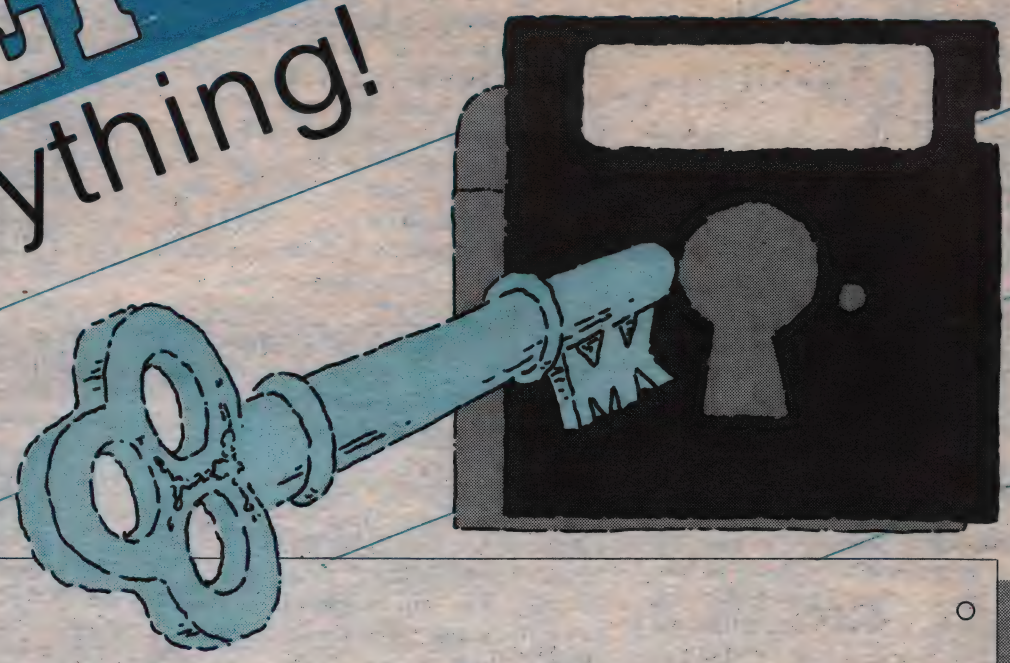

```
A>DEBUG
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-L
-D 100 129
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```

turn this: into this

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Without MASTER*KEY, how long do you think it would take to find out this program wasn't running because you had the wrong version of DOS?

```
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                          ;Program:  PROGRAM.COM
0100          EB0B        H0100:  JMP     H010D
                          ;-----------------------------------------------
0102          40                  INC     AX              ;NON-BRANCHED CODE
0103   Ve     055665              ADD     AX,6556h
0106  rs      7273                JB      H017B  ;. . . . . .
0108   1      2031                AND     [BX+DI],DH
010A  .       2E                  DB      2Eh
010B  81      3831                CMP     [BX+DI],DH
                          ;-----------------------------------------------
010D  P       50          H010D:  PUSH    AX
010E   0      B430                MOV     AH,30h
0110   !      CD21                INT     21h             ;get DOS Version#
0112          86E0                XCHG    AL,AH
0114  =6      3D3601              CMP     AX,0136h
0117  r       7205                JB      H011E  ;. . . . . .
0119  =       3D0A02              CMP     AX,020Ah
011C  v       7609                JBE     H0127  ;. . . . . .
011E          BACB03      H011E:  MOV     DX,03CBh
0121          B409                MOV     AH,09h
0123   !      CD21                INT     21h             ;display string, DX
0125          CD20                INT     20h             ;terminate normally
                          ;-----------------------------------------------
0127  X       58          H0127:  POP     AX
0128   /      EB2F                JMP     H0159
                          ;-----------------------------------------------
```

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Amstrad PCW
continued from page 15

was using all the features of the program and typing out her letters and memos just like she had done so all her life! Strangely she seemed to prefer the draft mode to NLQ, said it looked more like a typewriter! There is a wide choice of type styles in the system. You can select normal or italic type in normal width or double width and 10, 12, 15, 17, pitch or proportional spacing. In fact there are many options available with Locosoft, however for those just starting out, all of this can be taken care of by default and you need never know they exist.

After using the system for two weeks, Peggy is sold on Word Processing in place of "write by hand," I hate to tell her we must return the machine.

How does the Amstrad compare with one of our personal computers? First, you do much better with a Commodore 64/128 or an Atari XL, a monochrome monitor and one of the good dot matrix printers advertised in *Computer Shopper*. However the person who would buy the Amstrad PCW might never take the step of buying and setting up the personal computer and then obtaining the software. Getting it all in one package at a reasonable cost will be a powerful buying incentive. Another selling point is a one year limited warranty.

I doubt if anyone who sees the flickering screen next to the CRT of any computer, will buy the Amstrad PCW. But then they won't see it in a place where they can compare, will they?

With the right advertising and promotion they will sell a lot of these machines. Remember the Adam? It also was built on the same concept and it almost made it. If the Adam had a disk drive in place of that oddball cassette and it didn't have production and operation problems it would have been a big winner. Perhaps Amstrad will ride on the publicity of the Adam; if they can only cure that CRT flicker. There is one other odd thing about the Amstrad PCW and that is the disk size. Now that 5¼" and 3½" have become the standards, this system comes out with a 3" hardshell disk drive! For a while when no one was sure of the hard shell floppy size that would prevail, you could get 3" or 3½"disks. (There was a 3" IBM compatible drive made by Amdek.) Now nothing else but 3½" disks are available in the less than 5¼" field. Sears World Trade says they will sell the disks with the system, but suppose they stop importing the Amstrad. What will you do for disks then? How about the ribbons for the little printer, that will also be a sole source item. If this system becomes a big winner there will be plenty of supplies, but if it loses even by a slim margin, no one will supply the people who bought the early units. Ever try to get a wafer for an Adam?

There ought to be a consumer protection law that requires everyone who imports a new computer or printer to provide at least a five year supply of consumable and maintenance parts.

Meanwhile Peggy Barnes, our non-computer wise tester, loves the Amstrad and she would use one if the company bought it for her. However, she could not justify buying it for her home. In spite of this there is a market for such a product, at the right price.

Processor: Z80A
Memory Capacity: 256K bytes of RAM
Disk: Built-in, 3-inch covering 180K of formatted space per side
Operating System: CP/M Plus
Display Tint: Green, high resolution
Disk Software: LocaScript, CP/M Mallard Basic
Display Capacity: 90 columns by 3[illegible] lines
Printer: Dot-matrix, 90 cps draft; 2[illegible] cps correspondence quality
Keyboard: Full typewriter, plus easy to-use function keys
Electrical: UL/FCC approved

Take Your Computer
continued from page 10

for a computer, carrying one all day can wear you out. Be sure you have a shoulder bag for the computer, a printer and supplies. Get one with a wide strap that will not cut a slot in your collar bone. Again be sure to take along proper disks, paper for the printer, ribbons if needed and take the manuals with you. I have been out in the deep boonies with my portable when I forgot how to do something vital. I might as well have left it home.

Most true portables are battery operated with AC adapters. Where ever you go take a large supply of fresh batteries along. If you are going abroad take a 115/220 volt converter with you. Also take a electrical plug kit made to adapt all of the funny foreign AC plugs to your equipment.

If your computer was made in a foreign country and you are traveling out of the U.S. before you leave the airport place of departure, go to US Customs and register your equipment. They will give you a piece of paper to tell the Customs Agent at your point of entry that you haven't just bought the equipment abroad. You would hate to have to pay duty on your old computer wouldn't you? When you land in the foreign port of entry, the same paper will help prove to the customs agents that you are not importing the equipment into their country, since you intend to return to the US with it.

The regulations regarding using your portable on an aircraft are so mixed up that they vary with every airline in the world. Speak to your travel agency about the rules for the airlines you are going to travel on.

You will often be in a country with completely different power than the US. You will not be able to use your AC adapters for the portable unless you have the proper adapter and plugs. Be sure you carry plenty of batteries for this condition. Use AC whenever you can to save your batteries.

Have a great vacation, with or without your computer. ●

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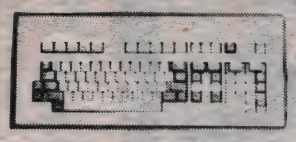

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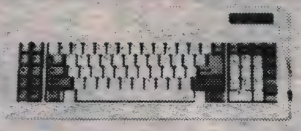

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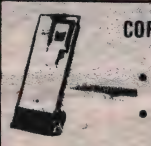

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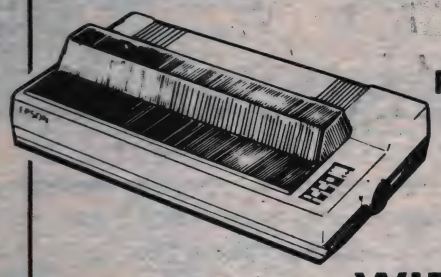

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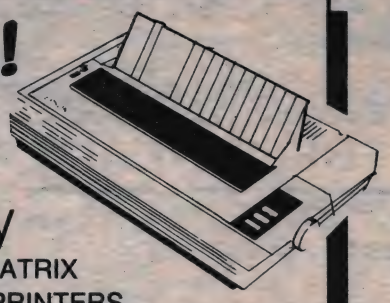

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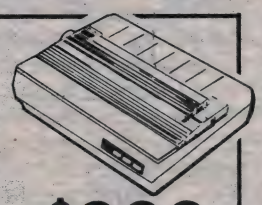

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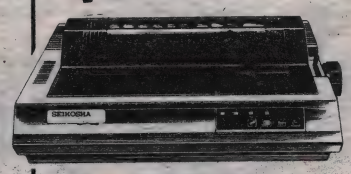

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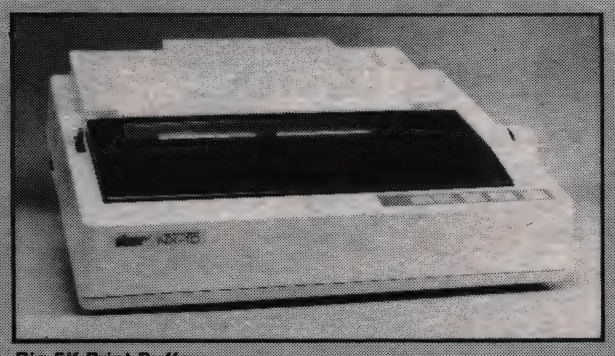

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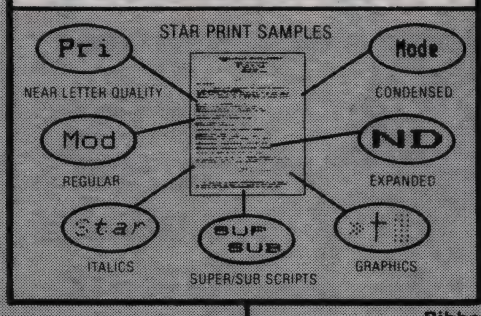

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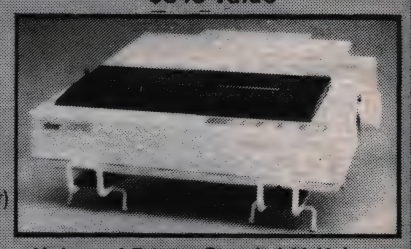

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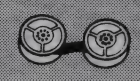

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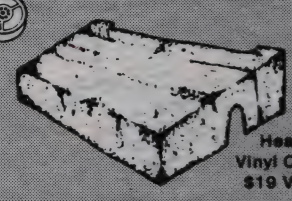

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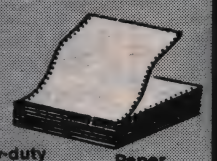

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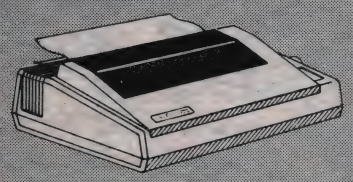

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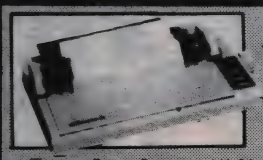

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Because the LX-80 is made by Epson—the standard of the industry— it's compatible with virtually every computer system made. It inherits a reputation for dependability and durability that's unsurpassed by any other brand. And it offers a full one year warranty—the best in the business.

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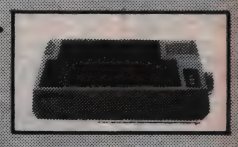

LIST $699

Quite simply the Epson FX-85 is the most intelligent way to print you can find. At a brisk 160 characters per second in draft mode and 32 characters per second typewriter style near letter quality mode, the FX-85 gives you professional versatility. A new 8K internal buffer stores up to 4 pages of data allowing you to print and use your computer at the same time.

Plus, for an added measure of creativity, Epson's exclusive SelecType feature gives you finger tip selection of numerous popular typestyles at the touch of a few buttons. Its easy control panel selector means less time programming when changing typestyles. The FX-85 is equipped with both pin feed and friction feed and connects to your computer by simply plugging in a cable. And with Epson's full year warranty you can be sure you're getting the most in quality, dependability and performance.

Get a hard working business printer designed to give you a powerful advantage in meeting the hectic, high-pressure demands of today's business world. . . get the FX-85!

LQ 800 & 1000

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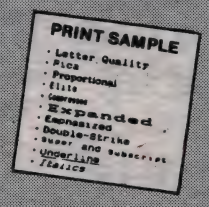

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The LQ-800 and LQ-1000 can print at a speedy 180 cps printhead speed in the high speed draft mode. A speed fast enough to put a typical length business letter in your hands in under 25 seconds. Or, for a finished professional look, switch to Letter Quality mode at 60 cps. The results will amaze you. Epson's advanced new 24 pin printhead assures superb resolution page after page. In fact, print quality is so superior to that produced by other dot-matrix printers, you'd think it came from a top of the line office typewriter. And for fast, efficient throughput, both print bi-directionally using intelligent, logic-seeking electronic systems. The smart way to put business on paper.

Whether you take one home, use it to help run a small to medium sized business, or use them in a corporate environment, the LQ-800 and LQ-1000 make excellent choices for virtually any printing task. You can turn out drafts at high speed, letter quality copy in seconds, or sharp, finely defined graphics. The 136 column LQ-1000 is ideal for printing spreadsheets and financial reports, while the 80 column LQ-800 can handle everything from correspondence to mailing labels. Both come with a 7K internal buffer that stores up to four pages of data allowing you to print and use your computer at the same time. Easily installed optional Identity Modules let you choose between Extended Epson Graphics, IBM Graphics Printer or Diablo 630 code. The kind of versatility a growing business demands. There are also built-in fonts and optional Font Modules for an array of easy to access font styles. The choice is yours.

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The new FX-286 Dot-Matrix Printer is ideal for use at home, in the office or multi-use corporate environment. You can turn out drafts at high speed, Near Letter Quality copies in seconds and graphics of superb resolution. Standard Tractor Feed and Friction Feed accommodate virtually any type of paper; single sheet or fanfold. For optimum versatility, SelecType gives you numerous typestyles at the touch of a button. The FX-286 uses the industry standard parallel interface and has a dip switch selectable "dual identity." Epson standard code compatibility and IBM® printer emulation. You even get build-in IBM graphics character sets for sharp resolution in graphs, charts and illustrations.

Optimum Versatility:
- Print drafts at high speed; Near Letter Quality copies; and superb graphics.
- An 8K internal buffer allows you to print and use your computer at the same time.
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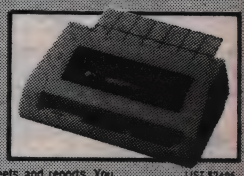

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Print Speed: 420 CPS/Draft, 104 CPS/Correspondence Quality, 2560 dots/sec – standard graphics, 1250 dots/sec – high density graphics
Print Head: 8-pin staggered arrangement
Character Sets: Standard 96 ASCII printing in 17 fonts
Line Spacing: n/180 in n=0-255
Paper Feed: Pin feed (paper width adjustable) and built-in friction feed
Paper Width: 3 to 15" (pin feed) Up to 16" (feed)
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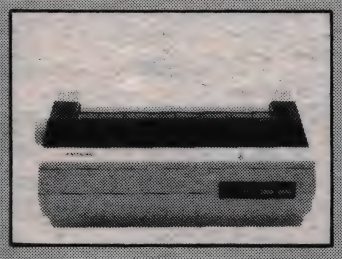

Productivity is very important to us. How fast are the DX-10, CX-20 and DX-35?
The choice is yours. At 10 cps, the DX-10 can turn out a typical business letter about three times faster than even the most nimble typist. Which equates to over 100 words per minute. Move up to the DX-20 and you get the same impeccably printed page, at twice the speed. Its quick 20 cps means overall efficiency at the top of the class in daisywheel printers. At over 200 words per minute, The DX-35 gives you impeccable quality and performance at the top of the daisywheel class at 35 cps and as an added feature provides a 136 column carriage.

How versatile are the DX Series Daisywheel Printers?
All are ideal additions to any office or home computer system. And in business environments, versatility is often the key to greater success. Each has a Single Sheet Feed for printing letters and spreadsheets. With the DX-20, paper sizes up to 13 inches in width are accommodated. Plus, for the utmost in creative versatility, an interchangeable Diablo compatible print wheel gives you immediate access to a huge selection of English and international typestyles.

Will any Epson Daisywheel Printer work with the computer we now have?
Absolutely. Not only is Epson the world leader in computer printers, it's the world standard. Virtually all computer manufacturers and software publishers design their products to be specifically compatible with Epson printers.

How long is the Epson warranty?
One full year. Because Epson DX Daisywheel Printers are made by the world leader in computer printers, you can be sure you're getting the most in quality, dependability, and performance.

Will the DX-10, DX-20 and DX-35 be able to grow with our business?
The option is yours. An optional Tractor Feed for long printing jobs, a Cut Sheet Feeder for aligning and inserting individual sheets, and for the DX-20 and DX-35, a typewriter keyboard. There's simply no question about it. When you want to look good on paper, you can't beat the Epson DX Series Letter Quality Daisywheel Printers.

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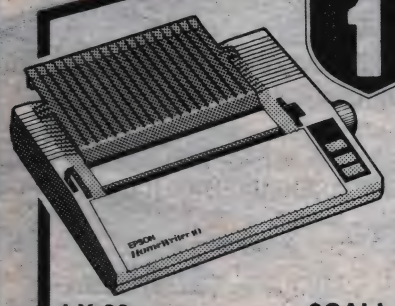

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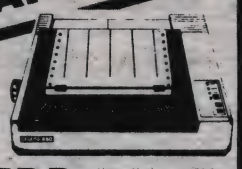

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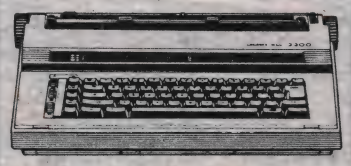

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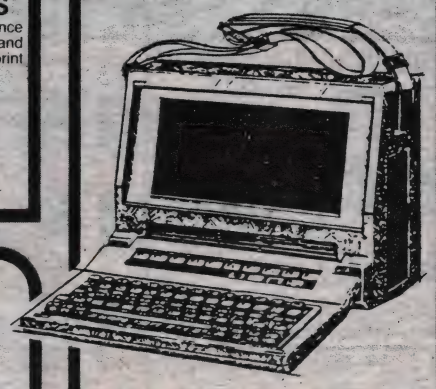

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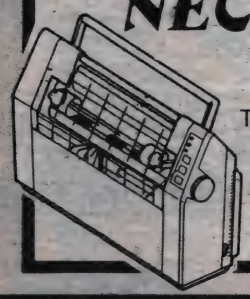

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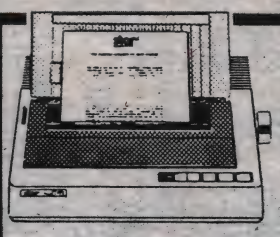

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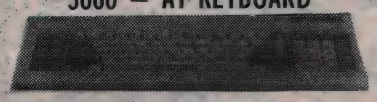

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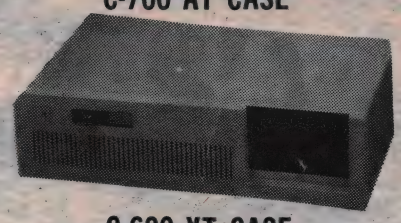

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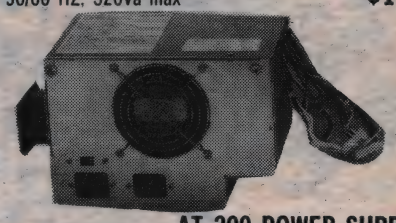

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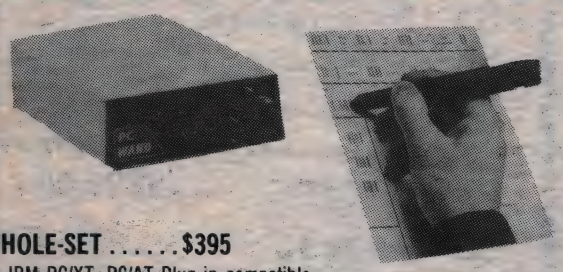

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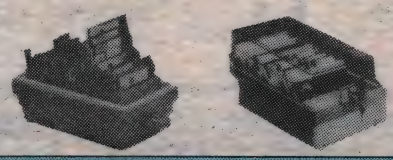

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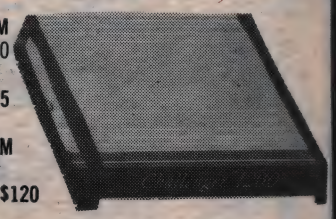

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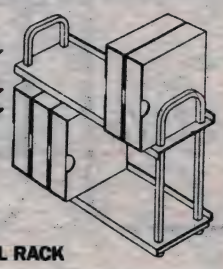

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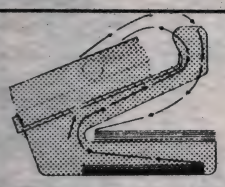

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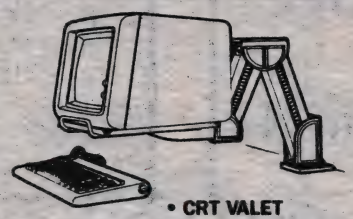

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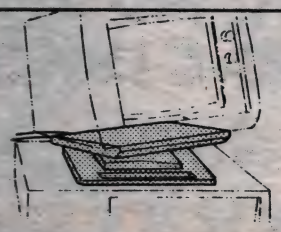

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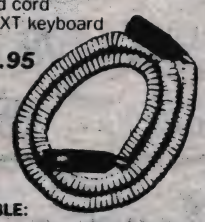

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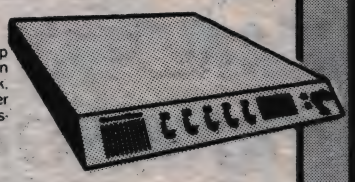

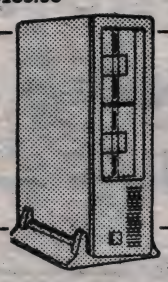

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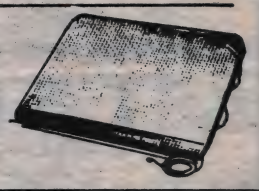

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We bought 5 skids of these cassettes. Titles include: *Touch Typing, Invitation to Programming I & II, Hangman, Introduction to Sound, Blackjack, Juggles House, Juggles Rainbow, Introduction to Graphics, States and Capitals, European Countries and Capitals, Scram and Writing Programs Two.* These are a very high quality recording tape and may be recorded over for excellent reproduction. Most come in cassette holders. Sorry, no choice on titles. Super good assortment (some duplications when necessary). Most C-60. May be last chance to obtain these.

10/$10.50 or 20/$17.50

PC-XT Compatible Dot Matrix Printers by Olivetti Model # PR1450

BRAND NEW IN ORIGINAL FACTORY BOXES. HIGH SPEED: 100 CPS - INCLUDES LONG LIFE PACK - CART RIBBON CARTRIDGE - FRICTION OR PIN FEED - CENTRONICS PARALLEL INPUT, IBM P.C., X.T. COMPATIBLE. HEAVY DUTY CONSTRUCTION FOR CONTINUOUS SERVICE. MULTI-FUNCTIONAL CHARACTER FONT. DIP SWITCH OR SOFTWARE SELECTABLE PRINT FORMAT FOR EITHER 80 COLUMN STANDARD, 132 COLUMN COMPRESSED, OR DOUBLE SIZE CHARACTERS. FORM LENGTH ALSO PROGRAMMABLE. ORIGINALLY COST BIG COMPUTER COMPANY SERVERAL TIMES OUR SALES PRICE.

NEW IN BOX WITH DATA
PRINT MATRIX 9 x 7
ADD $6.00 U.P.S.
CANADA ADD $15.00 POSTAGE

$129.00

PANASONIC

Green Screen - Video Monitors

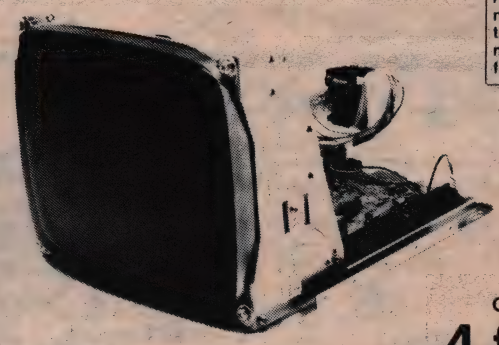
25 MHZ. TYPICAL BANDWIDTH!!!

Brand New In The Box! 9-Inch Screen

#K-904B1 (Chassis #Y08A) Open Frame Style

$29.95 EA.

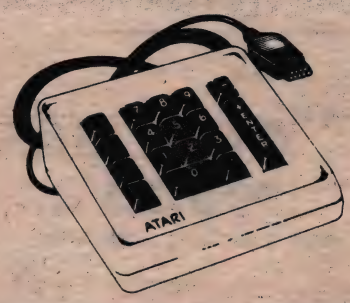
IBM PC COMPATIBLE! We have just received data on how to connect these monitors to a PC/XT through a color/graphics card. We tried it and it works great! Now you can buy a low cost monitor to use in place of those expensive RGB color monitors. Data and hook-up free on request.



GROUP SPECIAL:
4 for $99.00
WITH DATA & SCHEMATIC

(USA SHIPPING: $3. PER UNIT. CANADA: $7. PER UNIT)

COMPUTER MANUFACTURER'S EXCESS. STILL IN ORIGINAL PANASONIC BOXES. THE CRT TUBE ALONE WOULD COST MORE THAN OUR PRICE FOR THE COMPLETE UNIT. FOR SPLIT VIDEO (TTL INPUTS) OPERATION, NOT COMPOSITE VIDEO. OPERATES FROM 12VDC AT 1 AMP. VERTICAL INPUT IS 49 TO 61 HZ. HORIZONTAL INPUT: 15,750 HZ ± 500 HZ. RESOLUTION IS 800 LINES AT CENTER 650 LINES AT CORNERS.



ATARI HEX KEYBOARD

$7.95

3 for $20.00

Add $1.00 per unit for postage.

TERMS: (Unless specified elsewhere) Add $1.50 postage, we pay balance. Orders over $50.00 add 85c for insurance. No C.O.D. Texas Res. add 6-1/8% Tax. 90 Day Money Back Guarantee on all items. All items subject to prior sale. Prices subject to change without notice. Foreign order - US funds only. We cannot ship to Mexico. Countries other than Canada, add $3.50 shipping and handling.

B. G. MICRO

P.O. Box 280298 Dallas, Texas 75228
(214) 271-5546
FAX (214) 271-2462

MasterCard VISA American Express Card

"TALKERS"

SPEECH SYNTHESIS TECHNOLOGY AT SURPLUS PRICES!

We were recently fortunate to purchase a small lot of surplus computer boards that incorporate the very latest in high quality human speech synthesis.

This two board set was the heart of a blood analysis system designed for use by blind diabetics. This unique device was conceived by one of the world's leaders in computer blood systems. Apparently no expense was spared in either the research, design, or fabrication of this computer.

The board sets we are offering are NOT complete blood analysis systems and are sold only for the speech synthesis circuitry they contain. A powerful motorola 68705 U3L single chip processor controlled the blood analysis unit. This processor also interfaces to the General Instruments two chip speech set which includes a SPO256-AL2 (28 pins) and a SPROOO (40 pins).

The GI SPO256 contains 59 addressable allophones and 5 pauses which may be strung together to produce any English word. The SPROOO allows expansion to the external EPROM (27128) for storage of the desired vocabulary. The SPO256 also has a vocal tract model, 16K ROM, ALU, handshake control, pulse width modulator, 12 holding registers, and 5 interpolation registers all in one 28 pin package! This high density chip design allows for a complete voice system that requires only a few parts to be complete.

By adding only one resistor, the units can be put into a "Test" mode to demonstrate the internal vocabulary. This board set has been selling like crazy at surplus stores in both Dallas and Houston. We have, however, set aside a limited number of these boards for sale to our special mail order customers. One resourceful customer in Houston even had one of these "Talkers" connected to his personal computer doing random speech!

These devices were powered by a regulated 9VDC 1 Amp power supply. We have luckily acquired a FEW of the supplies, and are selling them for $6.95 each when purchased WITH the Talkers. The DC supply is a totally self contained affair that is rated for only 10 mv ripple at the output. DC supply when purchased separately is $12.95.

We are also offering the GI set separately (new, unused parts) for $9.95. Remember: this is for BOTH chips. Radio Shack sells the SPO256 alone for $12.95!! Our stock on the new chip pairs is limited, please order early to avoid being left out. Sure, the completed Talker units are a better deal, but you still might want to purchase an extra chip set for a spare.

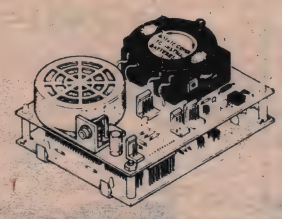
For the real hardware hackers we have a few of the blank PC board sets to the Talkers for $4 (both boards).

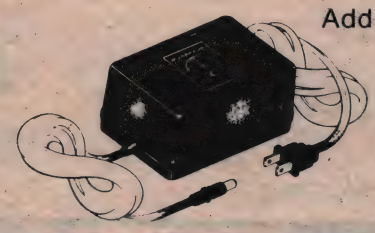
We include full schematics of the Talkers, GI speech chip set data, and "Test" instructions, with every shipment. Note: issue #29 of Analog Computing (P.O. Box 615 Holmes, PA 19043) has a very detailed article on using the SPO256 with a personal computer.

Due to the limited number of Talkers in stock, we advise early ordering.

Radio Shack tm of Tandy Corp.

3.12 Crystal **$1.20**
Chip Set **$9.95**
P.C. Board Set **$4.00**
Power Supply Alone **$12.95**



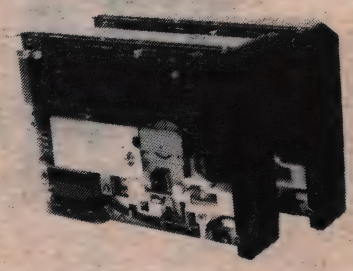


Add $3 Shipping in USA, Canada: add $6
(For Talker and supply)

Talker **$14.95**
Power Supply **$6.95**
(When Ordered With Talker)

WE'VE GOT EM!

5-1/4"
HALF SIZE DRIVES!
For IBM PC, TI PC, XEROX 820



- 40 Track per side 48 TPI
- Double-sided, double density
- Fast access time - 6 ms

*Two of These Half Size Drives will Fit in the Same Space as 1 Full Size Drive!

$69.95

ADD $3.00 UPS PER DRIVE

MANUAL FOR ABOVE — $12.50

- 80 Track per side 96 TPI
- Double-sided, quad density
- 80 Track per side 96 TPI
- Double-sided, quad density
- Fast access time — 6MS

*Two of These Half Size Drives will Fit in the Same Space as 1 Full Size Drive!

$99.95

ADD $3.00 UPS PER DRIVE

IBM PC, XT COMPATIBLE KEYBOARD

Computer manufacturers excess.
Brand new units manufactured by Micro Switch.

Kit includes keyboard, plastic housing, with built-in palm rest.
Coiled connecting cable and hardware.
Assembles in only 3 minutes.
Has same make and break codes as standard PC, XT keyboard.
Also works fine with most clones or compatibles.
This high quality American manufactured keyboard with custom designed housing originally cost a large OEM over $100.00 each in very large quantities.
Coiled connecting cord plugs into keyboard for easy replacement.
Extra cables $3.95

$39.95 Each *or* 3/$99.95
Add $3.00 for UPS per unit

TERMS: (Unless specified elsewhere) Add $1.50 postage, we pay balance. Orders over $50.00 add 85¢ for insurance. No C.O.D. Texas Res. add 6-1/8% Tax. 90 Day Money Back Guarantee on all items. All items subject to prior sale. Prices subject to change without notice. Foreign order - US funds only. We cannot ship to Mexico. Countries other than Canada, add $3.50 shipping and handling.

GODFATHER'S used computer SYNDICATE

COLUMBIA

DATA PRODUCTS, INC.

COLUMBIA LIVES AGAIN!!

WHAT'S THIS WE HEAR ABOUT YOU ACQUIRING COLUMBIA DATA PRODUCTS, INC.?
Yeah, I made them an offer . . . and you know the rest!!

Actually, Godfathers DIDN'T acquire Columbia, but we DID buy the assets, name, and technology and are creating a NEW Columbia Data Products, Inc. here in Florida. This new corporation will work hand-in-hand with Godfather's to provide extremely competitive products with unsurpassed quality and support.

WHAT MAKES YOU THINK THAT YOU CAN MAKE COLUMBIA SUCCESSFUL?
Columbia computers were voted first in their class last year — TWICE! First, their products were voted the most compatible and well-built PC's in the industry. Second, Columbia had the distinction of being voted the company that dealers least wanted to represent. In fact, the primary reason Columbia failed was their unfortunate lack of concern for their customers and dealers.

During the last year, however, Godfather's has become the largest "unauthorized" Columbia dealer in the nation. And if you ask anyone about doing business with Godfather's, they will probably rave about our good service and support. Godfather's has always believed that being responsive to our customers is what has made us successful. In fact, a high percentage of our business comes from other dealers who know they can depend on us to get them the answers they need . . . when they need them! They have also found that they need us less often because of our attention to detail before the sale. (For example, while most other suppliers ship their products in unopened factory cartons, Godfather's opens the box and performs testing, adjustment, and alignment of every computer, monitor, and disk drive we sell. As a result, our customers should have no problems when they receive our product.)

I think it's obvious that Columbia's reputation for quality products, coupled with Godfather's reputation for quality service and support, make an ideal team. We recognize that treating our customers, whether they are dealers or end users, the way that WE have always wanted to be treated (but seldom were) is the ONLY way we will be successful.

SO WHAT ROLE WILL GODFATHER'S ACTUALLY PLAY IN THIS TEAM?
While Godfather's will remain a separate corporation continuing in its current direction, it will provide the resources to get the new Columbia going strong. Godfather's knows how to market the Columbia products in a manner which inspires confidence in our customers. During the start-up of the new corporation, Godfather's will contribute the financial backing, purchasing, and marketing expertise to establish a strong emphasis on quality, service, and maintaining a high regard for the customer in each and every sale. We have also expanded our technical staff by adding additional software and hardware engineers to assure continued compatibility in our products.

SPEAKING OF PRODUCTS, WHAT DO YOU PLAN TO MARKET INITIALLY?
We finally have our new computer!! It is not just an "XT" or even a STANDARD "AT" . . . IT IS A SUPER "AT"!!! . . . THE COLUMBIA AT-6000!!! . . . with more of everything for those who want the best. While I don't want to cover all the details here, it does come with lots of bundled software (including MS-DOS 3.2 and BASIC, as well as a library of applications), a 20MG hard drive, 5 half-height drive slots (4 of which are user accessible), 12 expansion slots, and a 230-watt power supply. It runs all the software we have seen that runs on the IBM-AT, as well as UNIX!! UNIX does not run on many of the other compatibles we have tried. Additionally, it is fully FCC certified, stickered, AND meets all the FCC regulations!! (It's fine for some companies to offer one and two year warranties, but it won't do much good if they are not around!!)

HOW DO YOU PLAN TO MARKET THIS NEW SYSTEM?
We are planning to build a network of authorized Columbia dealers and are currently accepting applications from interested parties. We, as Columbia, are looking for organizations who are committed to providing a high level of on-site service and support, as well as an exceptional value, for end users.

I ASSUME THAT GODFATHER'S WILL BECOME YOUR FIRST DEALER?
Yes, but only in the local designated area for the Columbia AT-6000. Godfather's will NOT be selling the Columbia AT-6000 by national mail order but will be marketing ONLY through local authorized dealers. Godfather's currently has no way of meeting the requirements of providing national ON-SITE service and has decided, instead, to provide only excellent local retail service on the Columbia AT-6000. However, Godfather's IS offering a comparable product for our mail order customers . . . GODFATHER'S VIOLIN!!

WELL, I ASSUME THAT IT'S THE SAME PRODUCT, ISN'T IT?
You can assume anything you like, but I didn't say that, NOR WILL I!!! . . . and neither will you, if you know what's good for you!!!

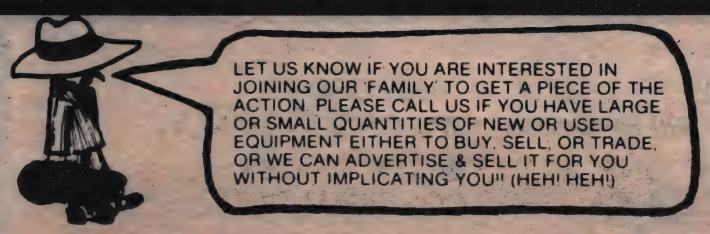
ARE YOU PLANNING TO MARKET ANY OTHER PRODUCTS INITIALLY?
The new AT-6000 will be Columbia's only computer system at this time. We have had several requests to license the bios but aren't sure whether or not we want to share our high degree of compatibility with other manufacturers. We will be offering ROM upgrades and DOS 3.2 (or better) for existing owners of the older models, along with continued service and support for their machines. We also acquired a limited supply of several software packages, service manuals, and many odds and ends which will be sold by Godfather's.

FROM WHOM WILL EXISTING COLUMBIA OWNERS PURCHASE THE ROM & DOS UPGRADES?
Right now, all you SUPPOSED Columbia orphans can order directly from Godfather's. In the near future, we plan to form a national Columbia Owners' Association to help provide the existing owners with an economical source for upgrades and repairs. Through this Association, we will publish a periodic newsletter in which owners can exchange ideas and stay informed of new products available to them. For instance, we may have a way for existing users to speed up the Columbia and also a way to disable one of the internal serial ports so an internal modem can be installed in the 1600 model. This is just an example of some of the many ways that we can assure all those orphans out there that there IS a GODFATHER!!!

CAN PEOPLE JOIN THE OWNER'S ASSOCIATION AT THIS TIME?
While we have not yet completed all the details for the Association we do encourage anyone interested to write us. We have prepared a survey which allows prospective members to provide input on how the Association can best serve them. We will also be offering a discounted membership fee for charter members.

PLEASE CALL OR WRITE US & TELL US IF YOU WANT TO SEE MORE OF THIS TYPE AD!

WANT TO BE A DEALER? CALL US FOR INFO!!



The Godfather

P.O. BOX 3037 • 1154 W. HIGHWAY 436 • FOREST CITY, FL 32714 • (305)774-1111

GODFATHER'S used computer SYNDICATE

.... Overstocks • Closeouts • Only Super Bargains

.... For an offer you can't refuse call (305) 774-1111

THREE NEW RGB MONITORS!

THREE NEW BOARDS!

ITEM	ANALOG	CABLE	STAND	HORIZ. FREQ.	VERT. FREQ.	SYNC.	COLORS	DOT PITCH	MAX RES.	TEXT SWITCH	CRT SIZE
NEW NEC EGA, PGA, CGA MULTISYNC JC 1401 P3A RGB/ANALOG — *Works with any board* OUR PRICE $595 COMPARE AT $799 (RETAIL) or $595 (WHOLESALE)	YES	YES — THREE	YES	15.75 - 35 KZ	50 - 60 HZ	+ OR —	64	.31 MM	800 X 560	7 COLORS	14''
NEC HI-RES RGB JC 1411 P2A SUPER HI-RES *Will Not Work With 15.75 KZ Board* OUR PRICE $350 COMPARE AT $700 (RETAIL) or $440 (WHOLESALE)	NO	YES	NO	24.83 KZ	52 - 68 HZ	— Neg.	8	.31 MM	800 X 380	NO	14''
HITACHI RGB[illegible]M 1216 [illegible] Standard [illegible] OUR [illegible] $600 (RETAIL) [illegible] $350 (WHOLESALE)	NO	YES	YES	15.75 KZ	60 HZ	+ Pos.	16	—	640 X —	NO	12''

EGA BOARD
WITH 256K & PARALLEL
OUR PRICE $350
(COMPARE AT $600)

HI RES COLOR BOARD
TAXAN 555
OUR PRICE $199
(COMPARE AT $250)

STANDARD IBM COMPATIBLE COLOR BOARD. CGA
OUR PRICE $99
(COMPARE AT $200)

SORRY NOT AVAILABLE

ALL AT UNBEATABLE PRICES!

ALL MONITORS COME WITH:
- 90 DAY WARRANTY
- SHORT PERSISTENCE BLACK TUBES

Save a Bundle With Our Compatible Cards

WE ONLY BUY USED EQUIPMENT .... UNLESS NEW COSTS LESS!!

LET US KNOW IF YOU ARE INTERESTED IN JOINING OUR FAMILY TO GET A PIECE OF THE ACTION PLEASE CALL US IF YOU HAVE LARGE OR SMALL QUANTITIES OF NEW OR USED EQUIPMENT EITHER TO BUY, SELL, OR TRADE OR WE CAN ADVERTISE & SELL IT FOR YOU WITHOUT IMPLICATING YOU!! (HEH! HEH!)

TERMS: CASH, CERTIFIED CHECK, MONEY ORDER • C.O.D. CASH • ADD $20 SHIPPING (UPS GROUND ONLY).

TERMS, SPECIFICATIONS, AVAILABILITY, PRICES SUBJECT TO CHANGE — CALL FOR CONFIRMATION.

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. . . . Overstocks • Closeouts • Only Super Bargains

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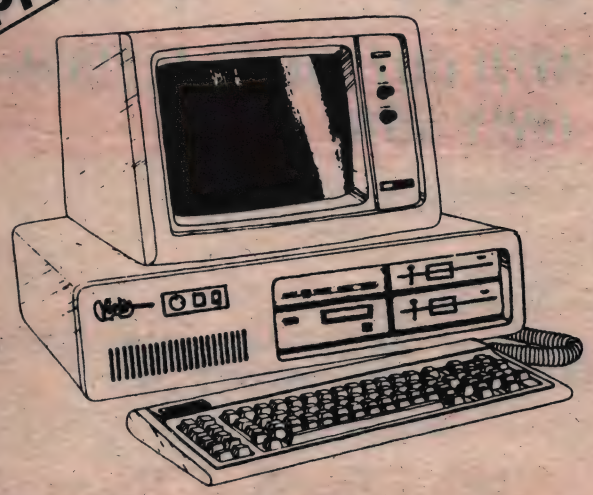
FINALLY. . . THE VIOLIN-AT!!

IBM-AT COMPATIBLE *ONLY BETTER*

FCC Approved



New! With 180 Day Warranty

$1995

WITH 20 MEG!

AND BUNDLED SOFTWARE WITH DOS

COMPARE GODFATHER'S HARDWARE AND SOFTWARE PRICES WITH THE COMPETITION

	VIOLIN-AT	COLUMBIA AT-6000	IBM AT	YOUR CLONE
20 Meg Hard Drive Included	YES	YES	?	?
# of Expansion Slots	12	12	8	?
# of ½ Height Drive or Tape Slots	5	5	4	?
# of Drive Slots in Front of Case	4	4	2	?
Clock Speed (mz)	6 or 8	6 or 8	?	?
# of Wait States (Lower is Faster)	0	0	?	?
Memory Included as Standard	512K	512K	?	?
Max Memory on Motherboard	1024K	1024K	?	?
Power Supply Watts	230	230	192	?
Manual Reset Switch	YES	YES	NO	?
AT Style Keyboard Included	YES	YES	YES	?
Parallel and Serial Ports Included	YES	YES	?	?
Runs UNIX	YES	YES	YES	?
EGA Card Compatible	YES	YES	YES	?
80287 Math Coprocessor Slot	YES	YES	YES	?
Clock Calendar	YES	YES	YES	?
2 Hard/2 Floppy Controller Included	YES	YES	YES	?
1.2 Meg or 360K Floppy Included	YES	YES	1.2	?
FCC Approved	YES	YES	YES	?
MS-DOS 3.2 Included	YES	YES	NO	?
Basic & Basica Included	YES	YES	NO	?
Huge Bundle of Software Included**	YES	YES	NO	?
Godfather's Factory Service	YES!	YES!	NO!	NO!
PRICE	$1995	$ _____	$ ___	$ ___

***Huge Bundle is available separately (without MS-DOS) for $300 for other clones!!*

Few machines can match the hardware features of the VIOLIN-AT, but they may try to do so in the future. To stay ahead of the rest we are including lots of software to this long list as it becomes available to us. Your hard drive will come already loaded and tested with most of this software, configured with an easy to use menu system so you will not have to learn MS-DOS as soon as you start. We have tested a large number of software packages and have found that the VIOLIN-AT runs all the same software as the IBM-AT that we tested.

THESE PROGRAMS ARE INCLUDED: MS-DOS 3.2 • MS-DOS tutorial • BASIC & BASICA • TIM-IV relational data base • Perfect Filer DBMS • Perfect Writer • Perfect Writer tutorial • Perfect Speller (50,000 words) • Perfect Calc spreadsheet • Perfect Calc tutorial • Fast Graphs • Perfect Link (modem program) • Home Accountant Plus • Hardware Diagnostics • menu system •

Besides these, the VIOLIN-AT runs all the popular IBM programs such as LOTUS, DBASE, AUTOCAD, WORDSTAR 2000, WORD PERFECT, and many more.

We insure your VIOLIN-AT will work reliably because of our extensive burn-in and testing. If service is required you can be assured that we will promptly repair or replace your VIOLIN-AT during your 180 day warranty. Parts and service will be available on a continuing prompt basis to serve you after that. Call before you order to confirm availability and exact configuration as prices and specifications are subject to possible change. We also will custom configure your VIOLIN-AT with reliable upgrades such as memory, monitors, EGA cards, larger or more hard drives and tape backups to maintain the quality you expect from Godfather's. I hope you are convinced that we have the best IBM-AT compatible, and for the best price anywhere.

WE ONLY BUY USED EQUIPMENT . . . UNLESS NEW COSTS LESS

LET US KNOW IF YOU ARE INTERESTED IN JOINING OUR 'FAMILY' TO GET A PIECE OF THE ACTION. PLEASE CALL US IF YOU HAVE LARGE OR SMALL QUANTITIES OF NEW OR USED EQUIPMENT EITHER TO BUY, SELL, OR TRADE. OR WE CAN ADVERTISE & SELL IT FOR YOU WITHOUT IMPLICATING YOU!! (HEH! HEH!)

TERMS: CASH, CERTIFIED CHECK, MONEY ORDER OR BANK WIRE • MASTERCARD ADD 4% AS PRICES ARE DISCOUNTED 4% FOR CASH • ADD $35 SHIPPING & HANDLING FOR EACH VIOLIN-AT.

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BCE LIQUIDATION!

Lowest Prices Anywhere!

Printer Liquidation

40 CPS Wide Carriage Letter Quality Daisywheel Printer

~~Mfr. Sug. Retail $1795.00~~

Liquidation Price

$349

80% OFF

WITH CUT SHEET FEEDER— ONLY $518

- Diablo 630 Compatible
- 40 CPS
- Bi-Directional
- Parallel Interface
- Works with IBM, Apple, Kaypro, and Most Other Brands
- Optional Sheetfeeder and Tractor feed

Made by TEC, *(Manufacturer of C. Itoh Starwriter F10-40)*

FEATURES

- Heavy duty aluminum diecast frame.
- Easily accessible dip switches for quick changing of print modes.
- Parallel centronics interface—works with Apple, IBM, Kaypro, etc.
- Automatic Self-Test.
- Automatic print pressure control prolongs print wheel life by varying printing pressure according to character shape.
- Paper Out Detector interrupts print operation.
- Uses standard Diablo printwheels and ribbon cartridges.
- Tractorfeed and sheetfeeder available.
- Underscore, double strike, and shadow print capabilities.
- Proportional spacing.
- Completely software compatible with Diablo 630.
- Full 90 day factory warranty.
- 15 Day Trial.
- Nationwide service available.

SPECIFICATIONS

Print Speed: 40 cps bi-directional printing
Buffer: 2K Buffer memory
Number of columns: 136 (Pica pitch), 163 (Elite pitch)
Print spacing (min): 1/120 in.
Line feed spacing (min): 1/48 in.
Paper width: 15 in; Print area, 13.6 in.
Printing System: Static font impact system
Number of copies: Original plus 2 copies (0.2 mm thick)
Number of character types per wheel: 96
Fonts: Courier 10 standard, plus-all other Diablo fonts
Pitch: 10, 12, 15, proportional
Interface: Centronics parallel
Power Source: 90-127 Volts at 60hz
Noise Level: Less than 65db
Physical dimensions: 6″ (H) x 16″ (W) x 24″ (L)
Weight: 30.8 lbs.

Why Such A Bargain?

This is a high quality 100% Diablo 630 compatible printer. It will work with just about all word processing software—since the Diablo 630 is the most standard word processing printer format there is. It uses Diablo ribbon cartridges and printwheels, so you can get supplies at any office supply store.

It was made by TEC and is mechanically "similar" to the C.Itoh Starwriter F10-40, made by the same manufacturer. It has a reputation as being one of the best printers made. So how can we sell it so cheaply?

The answer is simple—like many computer products, this printer was sold by one company to another company, which put its own label on it. In this case, TEC sold these printers to Commodore, which intended to sell them with an expensive business computer they were developing. The expensive computer took a lot longer to develop than Commodore anticipated—so they were stuck with these printers. Then they tried to sell them with their inexpensive computers—and you can imagine the result. How many people do you think would buy a printer with a list price of $1795 to go with a Commodore 64? You're right. Very few.

So we were able to acquire a great printer, made by a company known for its high quality printers, with only one drawback—the Commodore label on it, which falsely suggests that it is a low end printer.

However, the label can be a real advantage should your printer ever need service. Service is available not only at many dealers who repair C.Itoh and TEC printers, but also at all the hundreds of Commodore factory authorized service centers, located practically everywhere!

There is a 90 day factory warranty from Commodore. In addition, we guarantee you 100% satisfaction—no questions asked return within 15 days. What could be fairer?

ORDERING INFORMATION

Product #	Item	List Price	BCE Price	Shipping
LQ400-C6	Letter Quality Printer	~~$1795~~	$349	$22
LQ420-C6	Letter Quality Printer w/ Tractorfeed	~~2044~~	468	27
LQ440-C6	Letter Quality Printer w/ Sheetfeeder	~~2184~~	518	29
LQ460-C6	Letter Quality Printer w/ Tractorfeed & Sheetfeeder	~~2443~~	617	34
CA200-C6	IBM Parallel Cable	~~35~~	19	FREE SHIPPING WITH PRINTER ORDER
CA250-C6	Centronics to Centronics Parallel Cable	~~28~~	19	

100% Satisfaction Guarantee

Full 90 day factory warranty plus 15 day trial. If you are not completely satisfied for any reason, simply call within 15 days of receipt for a full refund.

Order Toll Free!

1-800-545-7447

Or Send Check or Money Order to

BCE Authorized Liquidators

3233 K Street, N.W.
Washington, D.C. 20007

Ordering Information

Please specify Product Number when ordering. Washington D.C. residents add 6% sales tax. We ship UPS Ground anywhere in the continental USA. Allow three weeks shipping time. To return an item, call customer service (1-800-231-3549) for an authorization number. Quantities of all items are limited. Some items may be subject to back order.

VISA Order Toll Free MasterCard

1-800-545-7447

Product Information:
1-202-944-3900, 9-5 EST, M-F

Customer Service Inquiries:
1-800-231-3549, 9-5 EST, M-F

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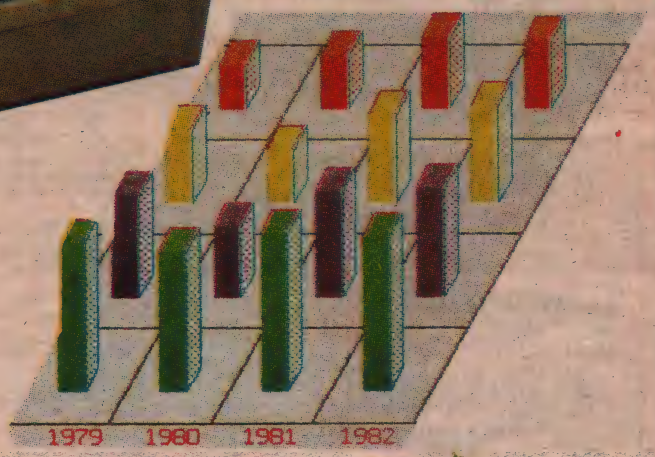

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Specifications

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Print head: Piezo-electric type
Nozzle: Four horizontally arranged nozzles
Printing direction: Bi-directional line scanning
Printing characters: Character composition: Standard 5x7 dot matrix; Character set: full ASCII character set (96) and special characters; Character size: 1.5 x 2.7mm (standard), 3.0 x 2.7mm (enlarged)
Maximum characters per line: 80 chars per line standard, 40 chars per line enlarged
Image printing: Image data: vertical 8 dot information; Resolution: 560 dots per line
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Interface: 8 bit parallel interface (Centronix type)
Paper: Paper type: plain paper; Roll paper: max width 8½" max., diameter 2¾"; Single sheet: max width 8½"
Overhead projection film: A-4 single sheet (Canon specified only)
Ink cartridge: Type: dual-cartridge ink supply; Ink amount: black-25cc, other colors—20cc each; Ink life: approx. 3.5 million characters per color
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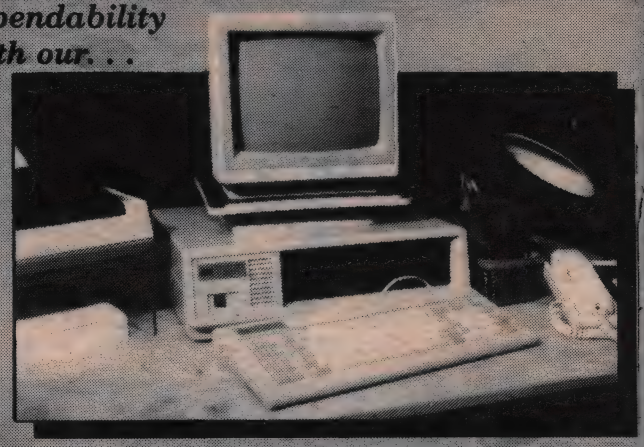

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Datavue-25 Portable Computer

by George M. Ewing

One of the good things about being a traveling free lance writer is that from time to time you get a chance to play with new items of hardware that you could justify buying for your own personal use, but they are very interesting, just the same. Since my word processing system is currently CP/M based, the product discussed here are of no immediate use to me, but for the large number of MS-DOS users out there, especially those with fully IBM-compatible PCs, it might be just the ticket. I had the opportunity to use them for a week or so while working on an assignment in Baltimore, and feel that I have developed a pretty good feel for their strong and weak points.

The Datavue-25 Portable Computer

(Note: in the last few months, Quadram has announced NINE new versions of the Datavue-25, Models DV2502 through DV2404! These machines can be ordered with varying amounts of memory up to 1.3 Meg, optional 3-½" drives, hard disks, and much improved fluorescent backlit LCD or even amber gas planar displays. This review is based on the early model machine that I was able to actually use on the job. It was purchased by my editor friend on discount at a trade show a few months ago, and while it was the only model then available, it is similar to the current bottom-of-the-line DV2502 model with one exception: it had no RGB port, and all the new Quadram machines come with an RGB port, standard. The new models do fix most of the shortcomings I noticed on the machine I used, albeit at considerable additional cost. Adding a CRT port also widens the market to include potential users who want a portable, but can't justify more than one MS-DOS computer.

The original Datavue-25 is a full-screen, LCD portable computer that runs an MS-DOS operating system, and comes with a single standard 5 ¼" disk drive. It is capable of up to several hours of operation on an internal battery pack. I've called the Datavue a "portable" computer; at 12 pounds, it's heavier than many laptop portables, but much lighter than the "transportable" desktop machines. It probably fits best in the "Advanced Business Portable" class along with similar emerging machines such as the Zenith Z-171 and IBM Convertible PC. With the detachable keyboard and tilting LCD display folded, it's slightly smaller than an IBM-PCjr. In fact, soft-sided carrying cases made for the PCjr. work fine, with a little extra room left over for a spare battery pack and a box of disks.

The machine my editor friend loaned to me had been up-graded to its full complement of 640K of RAM, but did not have the optional modem, RGB port, backlit display screen, or the second disk drive. You don't really need a second drive for most applications, as the operating system allows you to partition the 640K of RAM between regular system memory and a virtual RAM disk, which can be configured to include up to 360K. The battery pack is the long, flat, cartridge type, like those used in many portable VCR

Datavue-25 Portable Computer

machines. It's good for several hours of operation, depending mostly on the number of disk accesses you do, (the physical disk drive is the real power hog in this machine) and can be snapped out of its slot in the case and replaced in a second or two with a spare. Recharging takes up to two or three hours, and can be done concurrently while using the machine on its AC supply. A screen display utility indicates battery charge as a percentage. (There are also penlight cells in the detachable keyboard. They last a long time, and spares are cheaply available anywhere.)

Users in isolated locations where recharging may be difficult can conserve battery life by using the RAM disk as much as possible, and keeping accesses to the physical disk drive to the minimum necessary for prudent backup. Also, as the battery pack is really just a 12VDC vehicle system shouldn't be too hard to come up with, though filtering and surge protection is even more critical for a vehicle DC system than for most home and office AC Lines. Real off-road wilderness types might find a couple of Gel-Cells (TM) or a motorcycle or lawn-tractor storage battery more efficient (and cost—effective) than several of the stock cartridge packs, which list for about sixty dollars each.

The machine comes with a VERY comprehensive disk full of self-diagnostic programs, more thorough than TMSI's "Doctor T" for their 8086 machines, for example. Special control and escape sequences allow you to adjust the density and contrast of the LCD display, loudness of the keyclick generator, etc. The LCD screen can be tilted physically for the best viewing angle, but mine was not backlit for dim light use.

The manuals are well done, and explain the special hardware features, elaborate diagnostics, and the DOS commands very thoroughly. The keyboard is compact, lightweight, and is detachable from the machine. It communicates with the computer either through a short coiled cord or a PCjr.—style IR cord-less link.

Evaluation

For the most part, the Datavue-25 was very easy to use. The instructions are comprehensive and detailed, and the keyboard has a good feel. All the MS-DOS business software I tried worked fine; even applications that normally require two drives will run correctly, sometimes even faster, using the RAM disk. (I also tried some Turbo Pascal prog--rams and a couple of different screen editors, as well as utilities; I even took some notes using EDLIN!) The physical size and shape of the machine

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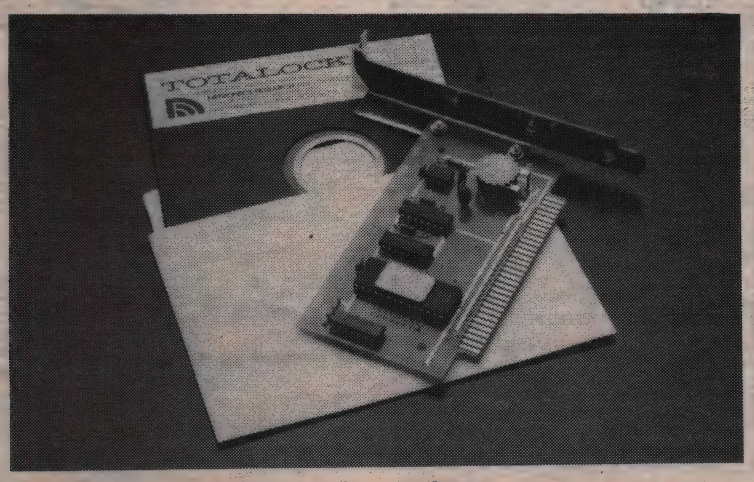
Security System For IBM PCs, XTs, ATs and Compatibles Protects Files, Operating Systems, and Peripherals



Totalock Security System

Netronics R & D Ltd. introduces TOTALOCK, a new hardware based security system for IBM PC's, XT's, AT's and compatibles that protects all files and company secrets as well as the operating system and peripherals. The TOTALOCK system stops all unauthorized users from gaining access to the system by requesting a password before allowing access to the operating system. If the wrong password is entered or unauthorized system disks are used TOTALOCK shuts down the computer and all peripherals. The TOTALOCK system is ideal for both stand alone computers and work stations.

The TOTALOCK security system consists of a "half-size" printed circuit card that plugs into the computer. TOTALOCK electronics shuts down the computer unless deactivated by the correct password. TOTALOCK software is merged into DOS (version 2.0 or higher) and is invisible except for the request for password.

TOTALOCK is available as a single password system, Model 700-1 at $100.00 and as a four-user password system, Model 700-4 at $120.00.

For additional information contact Netronics R & D Ltd., 333 Litchfield Road, New Milford, CT 06776; (800) 722-8883 or (203) 355-2659.

Mention that you read about it in *Computer Shopper*. ●

MDS Genius (TM) Very High Resolution Display

MDS Genius VHR Display

by George M. Ewing

If you are a serious professional writer who prefers working with a full, 66-line page of text in front of you, with the same aspect ratio and high resolution as a sheet of manuscript paper in a typewriter, and have, or are going to get, an IBM-PC compatible MS-DOS Computer, this product may be for you.

The MDS Genius (TM) VHR display is a very high resolution (728x1008 pixels in bit-mapped graphics mode) monochrome monitor with a 15" white phosphor CRT mounted in a "portrait" (vertical) format. There are two versions of the system, each with its own interface card that plugs into any standard IBM-PC compatible expansion slot. The model 401 displays up to 66 lines of text, characters, and numbers only, and costs about $1400 retail. The model 402 includes the bit-mapped graphics as well, and retails for about $1,800.

From a writer's or editor's point of view, the most impressive feature of the MDS display is that it can show a complete manuscript page of up to 66 lines at a time, more than twice as much text as a typical high quality word processing program can usually give you on a PC. What's more, the text is very steady on the eyes and razor clean. It is, as at least one raving reviewer has said, "virtually electronic paper." It is certainly very good, cleaner than most big-screen terminal displays I've seen in publishing houses and newspapers.

Of course, the 402 version can do other neat things as well. It can, for example, be commanded to come up in a unique dual mode, emulating an IBM-format Monochrome Display Adapter on the top half of the CRT face, and a Color Graphics Adapter on the bottom half! This is particularly handy for software like Lotus 1-2-3. You can have the whole CRT at high resolution, 5,280 characters for text and 733,824 pixels for graphics. You can have the whole CRT face at the MDS 728x1008 mode for graphics, or at the standard IBM 640x200 graphics mode, which is somewhat lower resolution, but will run additional software. Most of the biggies, though, like MicroSoft Windows, GEM, AutoCad, Metawindows, and so forth can take advantage of the MDS mode's higher resolution. The pixels are perfectly square at 100 dots-per-inch, and picture quality seemed better than in Macintosh demonstrations I have seen, even allowing for the bigger 15" tube. As an example of how good the resolution is, the technician who was showing me how to use the MDS display loaded in a reproduction of a fine line Escher engraving. He pointed to a tiny line in the corner of the screen; it was a faint ripple caused by a slight flaw in the glass on the original digitizer!

It is also possible to combine the text and graphics on one screen, superimposed one over the other, much as two analog television pictures can be superimposed with a video switcher. This allows you to do things like put a business form up on the screen as graphics, type the data into the form as text, and then manipulate the two independently to create or edit documents.

I expect this display is going to be a major contender in the desktop publishing market. MS-DOS versions of Aldus Page Maker (TM) and several of its competitors are scheduled to be available as well as the Macintosh/68,000 versions by the middle of this year, and this should generate a boom in MDS sales. Other non-publishing applications in fields like CAD/CAM, cartography, advanced accounting spreadsheets, art education, and so forth should be obvious. MDS has apparently been selling a great many of these displays in Europe, and got rave reviews at at least one big European trade show, plus very favorable coverage in the various IBM-related magazines in this country. Industry sources tell me that MDS may be negotiating a big contract as an OEM supplier to a major US office machine company for deluxe workstations, but I have no official confirmation of that.

Are there ANY negative aspects to the disply? In a few days of fairly intense work with the system, mostly just word processing, I didn't find very many. The white phosphor used on the CRT has a fairly long persistance. This is desirable for text and static graphics, as it evens out the display and helps prevent flickering, especially in a high-resolution, 100MHz, non-interlaced CRT. However, this does mean that bright, rapidly moving images leave a slight ghost trail, limiting usefulness for games with animated graphics. Some games also won't load in their standard IBM versions, as the software tries to check the IBM hardware configuration switches, and gets confused because it thinks the user is trying to run the game on the wrong graphics adapter. Some of these can be fixed by using a slightly different procedure when booting the system or loading the game. I found that the older release of WordStar I was using would only allow you to display 55 lines of text instead of 66, but this is still more than twice as many lines as a standard 25 line IBM display, and the resolution is higher.

The MDS Genius (TM) VHR display at a glance:

Format: 15" white phosphor CRT, non-interlaced vertical (portrait) mount, 66 or 25 lines, selectable. 80 characters per line, 5,280 character display, 728x1,008 pixels, 100 dots per inch, 1:1 pixel aspect ratio (square).

Character format: 9x15 character cell, 8x12 character matrix, with three dot true descenders.

Monitor size:
15 ½"x13 ¾"x14"
Monitor shipping weight: 47 lbs.

Price: There are two MDS models, the 401, which displays text and characters only, and retails for about $1,400, and the 402, which includes the 728x1008 pixel graphics as well, and costs about $1,800. Each includes the adapter card for a standard slot.

Manufacturer: Micro Display Systems, Inc. 1310 Vermillion St., P.O. Box 455, Hastings, Minnesota 55033; (612) 437-2233. ●

New Version of Word Finder Electronic Thesaurus

Writing Consultants, a division of Microlytics and supplier of specialized software for word processing, has announced that it began shipping a new version of Word Finder thesaurus software program for personal computers.

Word Finder Version 3.2 features 15,000 main word entries and 220,000 synonyms — over three times larger than the thesaurus database used in most other electronic thesaurus products. Word Finder 3.2 also has 4,000 more main word entries than the printed *Random House Thesaurus College Edition.*

Word Finder's on-screen commands allow users to easily find synonyms and then replace words in the text with a keystroke, and without swapping disks.

Enhancements to Version 3.2 include:

- Infinite word exploration which allows users to search for synonyms of synonyms.
- Ten level memory, enabling the user to keep track of the search through up to 10 sets of synonyms.

Word Finder includes the ability to unload the program from RAM when memory is required for another program, specify a DOS path for convenient use with hard disks and switch between word processors.

For words not included in the database, Word Finder alphabetically displays the 30 words closest in spelling, allowing the user to look up synonyms for a related word.

In addition to its thesaurus capabilities, Word Finder functions as a memory-resident dictionary, allowing the user to quickly check a word's spelling and meaning.

Word Finder 3.2 requires 29K bytes of RAM for the control program and includes two synonym databases: 220,000 synonyms for 15,000 words in a 325Kbyte file; and 90,000 synonyms for 9,000 words in a 157Kbyte file. Suggested retail price for Word Finder 3.2 is $79.95. Upgrades are available for users with previous version of Word Finder.

The new version of Word Finder supports 22 leading word processing programs, including WordStar, WordStar 2000, Multimate, Pfs:Write, Microsoft Word, Framework, DisplayWrite 3 and XyWrite III.

Word Finder 3.2 runs on IBM personal computers and IBM compatibles configured with a minimum of 128K bytes of RAM and two diskette drives. Word Finder is distributed by Softsel Computer Products, Inc. and sold directly by Writing Consultants.

Writing Consultants of East Rochester, NY., introduced Word Finder in November 1984. The product quickly hit the Softsel Hot List after the company began distribution.

For more information, contact Microlytics, Inc., Techniplex, 300 Main Street, East Rochester, NY 14445; (716) 248-9150.

Mention that you read about it in *Computer Shopper.* ●

COMMODORE

MSDOS For Amiga

When Commodore held the launch of the Amiga at Lincoln Center in New York one of the features of the evening was a demo of IBM PC compatibility. This was achieved through a software emulation program called Transformer. This MSDOS emulation system has finally been released to the public and a review of its capabilities is included in this article.

Commodore however responding to the critics complaints about the emulation program has now developed a hardware interface that makes the Amiga able to act as a 8088 MSDOS computer while retaining the features designed into its own operating system and supporting software. This is made possible by the ability of the M68000 CPU to support co-processors running on its bus.

The PC interface and hardware emulator is called the Sidecar (tm) because it plugs into the Amiga Expansion slot on the right side of the cabinet. The Sidecar contains an 8088 processor running at 4.77 MHz and 256K of RAM, expandable to 512K. It is equipped with a 5¼"disk drive and has provisions for an internal optional hard disk. The Sidecar is powered by its own power supply. The Sidecar unit also has three slots for IBM PC compatible boards.

A dual port is used to interface the 8088 CPU to the Amiga expansion bus. Both systems can operate completely independent of each other without losing performance or compromising speed. There is also a provision for installing a 8087 floating point processor or a 20 Mbyte hard disk.

Amiga Sidecar allows software to display PC video information as standard windows of the Amiga multitasking operating system. All standard PC video modes are supported. Both monochrome/alpha or color grahics can be displayed simultaneously in different windows. You can run IBM PC graphics, or text in the foreground while running Amiga applications in the background.

The Sidecar's 5¼" disk has a formatted capacity of 360K. A drive expansion connector on the back of the Sidecar permits a second 5¼" disk or another Amiga 3½" disk giving you a total capacity of 720K.

At the Comdex introduction of Sidecar, Commodore would quote no prices for the unit. All they would say was, "considerably less than $1000." This is important since Atari is also working on such a product and the IBM clone products are growing less expensive as more of them are imported.

The Sidecar has the advantage of using IBM PC peripherals and expansion units. It will also run many more MSDOS software than you can run on the Transformer. We think that Sidecar is a viable product and many Amiga owners will buy one to get the best of two worlds. Shipments are supposed to start in the fall of 1986.

It is also predicted that about the time Sidecar is ready for release, Commodore will have its IBM clones here in the United States. They have been successful in the European market, but here the competition is so much stronger.

Transformer

by Ervin Bobo

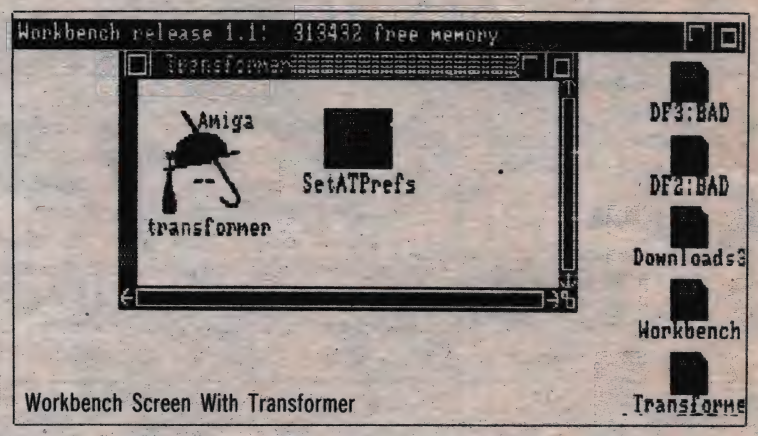
Even before its release, Transformer had become all things to all people. It is the most wanted and most misunderstood software ever developed for any personal computer, spawning speculations that, in the retelling, take on the aura of hard fact.

While every Amiga shopper has heard about Transformer, perhaps you haven't. In a nutshell, it is this: a software program that causes the Amiga to emulate the IBM PC computer. That much is true. How much emulation and how well the emulation works has been the subject of rumors, speculations and outright guessing since the day it was first announced.

Because of the nature of the program—and because not even all IBM PCs are one hundred percent compatible—there has been a reserve on the part of Commodore spokesmen. Beyond saying that it would allow your Amiga to run the programs on the PCDOS top twenty list, they have shied away from commenting on the percent of compatibility Transformer supplies, and with good reason: That such a program can even exist is amazing; as for the details of it, understatement is not only sufficient but less likely to cause trouble.

As released in the middle of April, Transformer was supplied as a no-charge bonus with the purchase of the Model 1080 5.25 inch disk drive for the Amiga. Total price of the package was $220.00—less than the cost of many disk drives alone and less than half the price originally stated by Commodore.

We can perhaps find a reason for that drastic price cut: the original concept of Transformer was that it was an interim piece, something that would allow Amiga owners to run existing software while the library of Amiga software was building. In November of 1985—the original release of data—this was a most valid concept. But they kept testing Transformer, kept tweaking it and by the time it was actually ready for market there was a pretty good selection of Amiga-only software. Sound business reasoning would tell you that, as the Amiga library grew, the Transformer market must decline—hence, the price cuts.



Workbench Screen With Transformer

However, during the time of refining the product, two very important things happened, one under the control of Commodore, the other out of left field and these things would make Transformer a good buy at twice the price.

The first thing that happened was that Transformer became a better product. As bugs were removed and the translation program tweaked, the degree of compatibility was increased.

The second event was under the control of IBM: One week before Transformer came to market, IBM sent to all their dealers copies of PCDOS 3.2—a disk operating system that ensures compatibility between the standard 5.25 drive and the new 3.5 drive that is the drive for IBM's laptop portable and that will be available for installation in IBM desktop

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CP/M Lives in the C-128

by Cheryl Peterson

Commodore's impressive showing at Spring Comdex told a lot about the attitude of the Commodore management. The booth's signs proclaimed "AMIGA" in huge letters, 'Commodore" in half-sized letters. The booth was populated by Amiga developers showing their (in many cases) almost completed software. About half the developers were actually shipping the products they were demonstrating. Almost all were months behind the predicted shipping dates handed out at last year's Amiga debut in New York.

Several of the vendors who were demonstrating products had similar programs already shipping for the C-64 and C-128, but no one was mentioning that unless questioned about it directly. Several times when I asked the demonstrator "When can I get a copy for my C-64 and C-128?" they esponded, "Oh, right now. We've been shipping those for 1) weeks, 2) quite a while now, 3) over a month."

Mind you while they were saying it, they were looking around to see if any of the "Commodore people" were within earshot. At one point, one representative actually admitted that the product he was showing was already available for the C-64, 128 and IBM PC. He was in fact, running the IBM version on the Commodore PC-10, because the Amiga version wasn't bug-proofed yet.

But how does that relate to CP/M on the C-128? In my tour of the Congress Center floor, I found almost no C-128 software. Abacus Software (bless them) was showing three software packages and a number of books for the C-128. No one was showing CP/M software that was specifically taylored for the C-128.

But, all is not lost for CP/M fans. First, lets take a look at some C-128 books.

Useful Book

Book publisher Howard Sams was showing their version of the *C-128 Programmers Reference Guide*. The official Commodore version, marketed by Bantam Books, was written by a Commodore technical writer, Lawrence Greenley, with help from a large group of Commodore advisors. I got a peek at a pre-release version and it looked pretty good. Fortunately, my copy came in the mail today, so I can include a complete review. There isn't a lot of information on using CP/M; only one chapter and parts of the appendix. Most of the CP/M info is related to programming, but there is a section describing the disk formats the 1571 can read and how to access them.

This book probably contains everything you ever wanted to know about the C-128 and a lot more than some people need to know. It deals with everything from BASIC and machine language to the hardware specs for each of the chips used in the computer. There are schematic diagrams and

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A Commodore User's View Of Comdex, Spring '86

by Dr. Al Koller

If you can imagine what it would be like to wander through fourteen football stadiums filled with the latest and best technological advances offered by the microcomputer industry, you'd have some idea of what it was like at Spring Comdex '86 in Atlanta. This was my first Comdex, and I am not ashamed to admit to being overwhelmed by the immensity of it all. This is how it looked to a first-time participant with special interest in Commodore products.

Amiga! Amiga! Amiga!

Although no single display dominated the show, the Amiga booth stood out for anyone entering the West display hall. It was two stories high, draped in large banners carrying the Amiga logo, and contained display areas for up to 40 separate demonstrations. Commodore was well represented, with the new IBM PC emulator in full operation. Called the Sidecar, this hardware/software combination attaches to the right side, plugging into the data bus. It contains a 5¼" disk drive, 256K RAM, an 8088 chip, and three card slots for IBM compatible boards. It also adds about six inches to the overall footprint of the Amiga's main box and does not provide pass through for further use of the main bus, so users will want to consider how to best combine hardware for maximum benefits! As a co-processor, the Sidecar permits the use of PC software of all kinds and still supports multi-tasking with the rest of your Amiga software running in native mode. Commodore spokespersons stated that Sidecar will retail for "substantially less than $1000," but would not be more specific. Rumors are that costs will be in the $300-$400 range when the product is released.

I was impressed with Sidecar, especially since it ran Flight Simulator without apparent delays, but I do not understand the Commodore marketing strategy. I asked the Commodore representative why a large and cumbersome addition like Sidecar hadn't been given the added intelligence and capability to emulate P/M and Commodore's own disk formats to allow compatibility with the immensely popular C-64 and C-128 machines, but no one had the answer. The 1571 disk drive sold to support the C-128 can read many disk formats directly, and such a capability would remedy the current crisis in compatibility which most observers agree is stifling the microcomputer industry today. Sidecar is certainly a step in the right direction, providing IBM compatibility for Amiga users, but it sure seems a small step in a very big commercial world at this point in the development of Amiga. HELP!!!

Third party software for Amiga at the show was truly impressive. It ranged from music software by Electronic Arts which allowed "play along" in three voices with control of the fourth by the user, to video digitizing schemes for using direct input to Amiga allowing capture of video images to disk for subsequent manipulation. One especially clever system uses an inexpensive black and white TV camera with color filters to digitize gray scale inputs and re-build the color image on the computer. Very sophisticated color, hue, and shading options permit nearly infinite alterations to suit the user. Cost: $199 without the TV camera; Digi-View, by Newtek, Topeka, Kansas.

There were the usual games, with impressive graphics and unbelievable colors, but what impressed me most at this Comdex was the availability of good quality third party productivity software. Although I haven't had a chance to try them out at length yet, several packages are now released to make use of the power of Amiga. One such program is MiAmiga File by Softwood Company. MiAmiga File is a full feature database management program written in C to make the most of Amiga. It combines pull-down menus, vertical and horizontal scrolling, variable length record management, RAM-based file management, and up to 32,000 records per file, depending on

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The Amiga Workbench

by Ervin Bobo

In naming the column, I chose that particular play on words as an expression of my hope that this will be a place where we can work together. Your letters, questions, tips, tricks and suggestions will make it so—otherwise, it's just me saying whatever comes to mind and a monologue can be boring after a while.

My feelings are that we can explore the Amiga together and in doing so we will discover more than a single explorer could. Each time I sit down to my machine, I am struck anew with a sense of wonder—never before has there been a computer capable of being so many things to so many different people.

It is this very versatility that prevents the Amiga being defined: there is no labelled niche for it because it fits so many niches. As new applications are found, as new hardware and software is introduced, the Amiga continually redefines itself, growing and changing. We can track those changes, we can report on them here, always being careful to pin no labels—at least, no permanent labels—on a computer that has so far defied all attempts at such.

The Amiga is not a graphics design computer; it is not a business computer; it is not a home computer; it is not a music generator or a game machine: it is all these things and more. Time may add more definitions and users will certainly add more. We'll track the users, too, but we can be most successful in this if the users write and tell us what they are doing.

With that statement of intent out of the way, let's take a look at what the computer has become this month by exploring the Amiga...

...As Painless Education

From the company that gave you the dazzling Amiga Tutorial, Mindscape, comes The Halley Project. Unlike other computer programs that employ the comet as a hook, this one has nothing to do with the recent visit of Comet Halley and so should have a market life long after the comet is no longer visible.

Though the game was first released in versions for the Commodore 64 and the Atari 800XL, the Amiga version has been completely rewritten to take advantage of new capabilities in graphics and sound. As a result, the graphics are superb and the sound, with a few incongrous exceptions, adds a great deal to the feel of Project.

After booting, the title screens appear, looking very much as if they were produced for a motion picture. As the credits appear against a field of rushing stars, your Amiga will sing to you. Though the digitized sound is not exceptionally clear in this instance, and though none of the sounds take advantage of the stereo capability of the Amiga, it is a nice surprise.

If you have a cassette player handy, the enclosed tape will give you the details of our mission—otherwise, you'll just have to read it off the screen like the rest of us. There are ten missions to complete, each more difficult than the last, and the object is to accomplish each one in the least possible amount of time.

For your first mission, you blast off from your base on Comet Halley, navigate to Earth and make a landing, then return to base. While this may seem simple, it is not, for The Halley Project simulates the solar system in great detail and nothing you learned in Space Invaders or Defender is going to be of any help to you.

Your view is out the viewport of your spaceship. In the foreground is your control panel, with readouts of elapsed time, speed and distance to target. The panel is fully operational by means of the mouse and the switches and levers really work. Click on the speed lever while in High Thrust and it moves to the Low position. Click on Left or Right direction and the corresponding switch moves.

You'll have to click on radar to get a screen showing an overview of your position and the position of your target. You are in the center and the other objects are the sun and planets. For your first mission, you'll have to know that the Earth is the third planet from the sun. Using the zoom feature, you expand the system until your target is at the edge of the circular screen. This allows your onboard computer to show you the distance in kilometers and also shows you in which constellation your target now resides.

All navigation is on the basis of constellations. To help you, there is an overlay strip show-

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Analyze! — A Spreadsheet For The Amiga

by Ronald Bobo

While some software publishers seem to have adopted a watch and wait attitude before committing themselves to the Amiga marketplace, one company in Florida has quietly moved into the vanguard of those who are turning out useful programs *now*.

Long known as a source of alternative operating systems for Radio Shack's TRS-80 computers, which frequently outperformed the originals, Micro-Systems Software has now turned its collective attention to the Amiga.

One of the latest releases from MSS is Analyze!, a spreadsheet.

For those Amiga owners who are new to computing, a spreadsheet is basically the electronic equivalent of a *very* large sheet of paper marked off into rows and columns.

Each intersection of row and column is known as a cell, and each cell is individually addressable. For instance, the very first cell in Analyze! is A1 (Row A, Column 1).

Analyze! has 256 columns and 8192 rows, making for a rather large sheet on which to calculate.

Mathematical formulas, instructions or labels may be entered into any of the cells.

For a simple example, let's say you're keeping a record of daily income for a small business.

To start, let's go to the first cell in the spreadsheet (A1, remember), and type in a label so when we look at the sheet later we will remember what it represents.

A1 will be our column title, A2 and A3 will represent two days of the month, and A4 will contain the total income.

Providing we have just loaded Analyze! by double-clicking on the icon (or by going into the CLI and typing the program name) the cursor, a large white rectangle, will already be in cell A1. If not, use the ar-

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But their loss is your gain. We bought the remaining inventory at a great price, and we're passing the savings on to you. Quite frankly, these are some of the best printers we've ever carried. They're Diablo 630 compatible, so they will work with all standard word processing programs. They use readily available Diablo ribbon cartridges and Qume printwheels. The sheetfeeder works like a dream—it lets you print up to 75 separate sheets without stopping to change the paper!

We're not alone in our praise for the Axiom DX 2000 and DX 2500. PC Magazine, in the September 17, 1985, issue, said, "It's got everything you would expect to find in a daisywheel. It's also quieter than most printers: The sound is subdued, even-tones, and nonabrasive. We like these printers so much we use them in our office."

We're so sure you'll like this printer that we give you a 15 day trial in addition to the 1 year factory warranty. If you are not satisfied with this printer for any reason simply call us within 15 days for a complete refund. Now what could be more fair than that?

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CA200-C6	IBM Parallel Cable	$ 19	FREE SHIPPING WITH PRINTER ORDER
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APPLE

Ask The Guru

by Don Lancaster

I have just gotten back from a several day visit with the folks at Apple Computer. And while there's lots of great stuff I am not allowed to talk about, I think it's safe to tell you this:

First, and foremost, there has been a total and complete turnaround in the Apple II division ever since Steve Jobs left a year ago. Many aggressive new Apple II products are most certainly in the works.

Apple is now going out of their way to work closely with user groups and is actively seeking input from both users and hackers. And technical information is becoming much more available, both through monthly technical notes, and user group access to the newly expanded Applelink BBS system.

Second, many of the new Apple II family products will strongly support an open and fully expandable architecture.

Third, as much as possible, all of the new Apple II products will be able to run older and existing Apple II software. Apple has gone to extremes to maintain upward compatibility.

Fourth and finally, definite upgrade paths will be provided. These might take the form of a board swap for the Apple IIe or else a very substantial trade-in allowance for an Apple II or Apple II+. That policy is for everybody, not just for schools as is the current policy.

Beyond that, I will let you know what I find out just as soon as I am legally allowed to. With *Computer Shopper's* tight publishing schedules, you'll hear all about it first right here.

So stay tuned.

Uh, it seems I dropped the address of the Digital Typeface Library from the names and numbers box two columns ago. Hopefully, you'll find the address at the end of this column. By the way, Addison-Weseley now has a new toll-free number.

As always, this is your column, and you can write or call per the end box. Besides lots of freebies, the latest two products are an upgraded Applewriter/Laserwriter Utilities and my new Apple RAM Card Disassembly Script.

Let's start off with a great find...

What Is The Penultimate Mouse Surface?

Several Tucson cave divers have put me onto the ultimate mouse working surface.

Besides being cheap and easy to get, it beats just about all the commercial products whiskers down.

So, run down to your friendly neighborhood divers supply or scuba shop, and get yourself some 1/8 inch or ¼ inch nylon *wetsuit material*.

Cost is around a dollar per square foot, and you use it fuzzy side up. It even comes in decorator colors. You can cut it with plain old scissors.

There's lots of styles available. The best one I have found so far is a ¼ inch thick material with a bright blue working surface. The back side has a no-skid "fish scale" pattern on it.

What Is So Special About The Laserwriter?

I get an unbelievable number of calls on this one, so let's repeat ourselves one more time:

Those knockoff, imitation laserwriter clones are not even in the same league. In fact, most of them are an outright joke.

The Laserwriter has an internal full page, full resolution bitmap allowing unlimited text and graphics mixes in any combination in any drawing order. The knockoffs do not.

The Laserwriter has an incredibly powerful Postscript typesetting language built in that easily handles full page mixed text and graphics descriptions. That same language is 100 percent compatible with "real" typesetting machines, so you can instantly upgrade your output to 2650 (DPI) Dots Per Inch at any time with no change in textfiles or applications packages. The knockoffs do not even dream of this.

Postscript often lets you dramatically speed things up. For instance, with Postscript, you put your form letter into the printer only once, and then simply erase and reprint the name and address each time. This is ridiculously faster than resending the entire letter for each and every name.

The Laserwriter has some extremely flexible internal font machinery. Any single font can be shown in any size from 3 points to 65,000 points in any direction, or along any arbitrary path, and put down in any order anywhere on the page in any of many different styles. Since many of the fonts use analytical descriptions, as the fonts get bigger, they get smoother, unlike the "Hershey Bar Effect" typical of the clones.

The Laserwriter is also, mercifully, free of plug-in cartridges.

Besides the hundreds of ready-to-use Laserwriter fonts available today, it is a simple matter to create and download custom fonts of your own.

The Laserwriter has a fantastically powerful built-in computer. In fact, it is the biggest and most powerful computer that Apple builds.

Because of this, any old word processor on any old computer can easily control the Laserwriter without any overhead hassles or excessive CPU time. Many knockoffs will totally tie up the host computer, even for such simple tasks as justifying characters.

Automatic signatures are particularly fast and easy with cubic splines.

Peek ahead at figure one for a different curve tracing sample. To put my money where my mouth is, I'll give you a free *SAMS* book if you can show me how to print this same figure *any* way on *any* of the imitation laserwriter knockoff clones.

How Do I Get Started In Desktop Publishing?

It's been said before, but the power of the press lies in owning one.

I guess I have been doing some personal publishing for almost a year now. It sure is nice to be able to send in "camera ready" artwork for my stories and columns and know that what I send in will be *exactly* what appears in print.

It's even nicer to be able to do all of my own ads without having to tangle with grossly overpriced printers, incompetent ad agencies, misguided copywriters, and so on.

So is the ability to print letterheads, labels, and so on "on

continued on next page

Computereyes Gray-Scale Compatibility Software

Digital Vision, Inc., announces the availability of its new Gray-Scale Compatibility Software to further enhance the performance and compatibility of its popular Computereyes Video Acquisition System. Computereyes is the company's innovative slow-scan device that connects between any standard video source (video camera, videotape recorder, video disk, etc.) and the computer and allows the user to acquire images into the high-res memory of the computer. Under simple software control, the user can acquire and display either high-contrast images or images with dot-density gray-scale.

Grey-scale Picture From Computereyes

The Gray-Scale Compatibility Software enhancement for Computereyes supports the enhanced graphics capabilities of two products available for the Apple IIe — the Legend Industries' E'Card and Video-7's Enhancer boards. These boards plug into the IIe auxilliary slot and allow the Apple to display not only standard and Double Hi-Res images, but also images consisting of intensity levels (shades of gray). Images acquired using Computereyes and the new Gray-Scale software contain up to eight shades of *true gray* and are superb! The accompanying screen photo is an example of a Computereyes-acquired gray-scale image. These images can be saved to disk and loaded directly into such popular programs as Dazzle Draw, Beagle Graphics, etc.

This software enhancement joins other popular Computereyes software enhancements for Apple computers, providing even more flexibility for Computereyes users. Other enhancements support the graphic capabilities of Double Hi-Res, Broderbund's Print Shop (direct acquisition of Print Shop "Graphics"), and Springboards' Newsroom (converts hi-res images to Newsroom-compatible "Photos"). Each System Software enhancement is supplied on disk with a users manual, and is available to Computereyes owners at a nominal charge of $15.00.

Computereyes is available for the Apple II+, IIe, and IIc series computers, IBM PC and compatibles, Commodore 64/128 computers, and Atari 800/800XL/130XE computers.

For further information, contact Digital Vision, Inc., 14 Oak Street-Suite 2, Needham, MA 02192; (617) 444-9040, 449-7160.

Mention that you read about it in *Computer Shopper*. ●

Apple Repair Tools

by Philip Chien

A couple of hundred thousand Apple IIs, Apple II + and compatible computers have been sold in the U.S. Apple Computer will "support" (repair their computers at least until 1998. Support is limited to repair at your local authorized dealer. Repair is limited to swapping out components for replacement parts. At my last check, a motherboard repair, no matter how simple, costs the customer about $110 — excluding labor. Repair for compatibles is even harder to find. Consequently there is a small, but expanding, repair business for those of us who know the difference between a 4116 and a 9334 chip.

Repairing Apples is relatively simple. Most of the chips are in IC sockets, there are very few custom ICs, and there are several good books available which show how to repair Apples. Generally Apples can be repaired by simply replacing a faulty IC. A decent technician can usually find which IC to replace by observing what happens, or doesn't happen when the power is turned on. A couple of quick chip swaps normally solves the problem. Experienced technicians also use logic probes and scopes to trace circuits to isolate problems. Generally the job is fairly easy, but a slightly flaky chip, or a hard to isolate problem can drive even an excellent technician crazy.

Life would be much simpler if you could point a device at your Apple, and it would tell you which chips were bad. That device doesn't exist yet, but the next best thing is available.

JDR distributes an IC Test card for the Apple. The tester will fit into an Apple slot, and test most common TTL ICs, including the 74XX, 74LS, and HC and CD CMOS series. RAMs and PROMs in the 54/74 series are also supported, but the card does not support the standard Dynamic or Static RAMs used in the Apple. In addition the card will not test ROMs, microprocessors, the special PAL, MMU, or IOU in the IIe, or other LSI chips. On a standard Apple II + motherboard, the tester will test 49 out of 86 chips. Of the 37 chips which can't be tested, 24 are RAM chips, 7 are ROMs, and the other six consist of the microprocessor, an op-amp for the cassette port, three timers, and the 8304 multiplexer. Since the RAMs and ROMs can be tested with a diagnostic program, and a timer problem can be very easily isolated (Apple uses timers for the power-on RESET, flashing cursor, and paddles) it turns out that, overall, 95% of all problems with ICs on an Apple II + can be isolated with the IC tester. Similar ratios exist for most other TTL based computers, and electronic devices. When a computer is more heavily based on special custom circuits (e.g. the Apple IIc) then the IC tester will not be able to test as many components. For very obvious reasons, you cannot use the IC tester to test ICs in the Apple it is plugged into.

Operation of the tester is simple. Just plug the IC tester into an empty slot and plug your IC into the ZIF (Zero Insertion Force) socket. A ribbon cable extends a 20 pin ZIF socket out of the Apple's case, and makes it fairly easy to test suspect ICs, and the card is short protected in case you accidentally plug in the IC backwards. Interestingly enough, a portion of the IC test board is sealed with epoxy to prevent the curious user from finding out what makes the tester work. The utility program which controls the tester comes on a DOS 3.3 program diskette. Three menu driven programs are provided, one each for TTL, HC series, and CD series. The menu lets you select what kind of IC you have, and whether you want a single loop test, or a longer looping test. The loop test is particularily useful for testing slightly flaky chips. There is also a search function which will tell you what kind of IC you have plugged into the tester. This last function is especially nice for "grab-bag" unmarked chips. The board also includes two adjustments to compensate for different levels on slightly out of spec ICs. The manual is skimpy (6 photocopied pages), and a direct Japanese translation, but adequate.

There is one major enhancement I would like. At the present the user must remove the IC from the board being tested, and place it into the IC tester's socket. It would be much easier, especially with soldered ICs, if the JDR came out with an adapter cable which ended in an IC test clip which could test ICs directly on their boards.

The IC test card is an excellent tool for a user which knows how to use it. If you know how ICs work, and what makes one IC different from another, then you can use it. Don't expect any fancy documentation or packaging—or even a fancy name. You will receive a decent product, with documentation and program translated from Japanese but the product does what it's supposed to do.

Besides repairing older Apples, it's also nice to add enhancements to them. Although Apple Computer still provides repair support for earlier machines, there is very little software, or hardware support when new products come out. If a new product supports earlier Apples, then the user is lucky. Since 1983, when Apple released the Apple IIe, the only hardware cards released by Apple Computer which will work on earlier Apples are: the DuoDrive and Unidrive, Apple Mouse, Apple Memory Expansion card, the Profile, and the Unidisk. What is particularily annoying is that although the Profile and Unidisk will work on an Apple II +, they will not automatically boot when power is turned on. If you want an autobooting Unidisk or Profile, you MUST have an enhanced Apple IIe.

Well, almost must. A quick look at the F8-monitor, and the Profile/Unidisk boot code reveals that the newer Apple drives have only three of the four bytes which the autostart ROM looks for when power is turned on. If your Apple's boot ROM were modified to look for only three bytes rather than four, then the Unidisk and Profile would automatically boot when the power is turned on. The byte which has to be modified is at location $FABB. Normally it is a $07, but if it was a $05 then an Apple II Plus could autoboot a Profile, Unidisk, or standard 5¼" drive. (Incidentally, if byte $FD83 is changed from $DF to $FF and if you have an upper/lowercase Keyboard installed on your Apple, then it will accept lowercase input without changing it into uppercase; but that's besides the point.) ROMs (Read Only Memory) are rather hard to modify, but they can be replaced with EPROMs (Eraseable Programmable Read Only Memory). An EPROM is a non-volatile (when power is removed it doesn't lose its memory) memory device which is relatively easy to program. It can be erased by exposure to high intensity Ultra-violet light, or by placing it in sunlight for a couple of years. Once erased it can be reprogrammed, making it excellent for testing enhancements. 2716 EPROMs are arranged in a 2K by 8 bit arrangement, the same as the Apple's ROMs. The pins which select the EPROM are slightly different from the Apple ROM selects, but an adapter socket is fairly easy to wire, and was published in *Computer Shopper* last year.

Besides enhancing the Apple's F8 ROM, EPROMs have many other uses. Don Lancaster's Absolute RESET routine, modified languages, keyboard maps, upper-lowercase character sets, foreign and special character sets for both 40 and 80 column displays can all be easily designed and burned. You can even burn in a BIOS ROM for IBM compatibles.

If you want to program an EPROM you can use a programming service (you send them a diskette with the code you want programmed, and they will program an EPROM for you—for a fee) or you can purchase an EPROM programmer and program it yourself. The RP525 is an excellent low cost programmer which will program a variety of different size EPROMs. It will program 2716, 2732, 2732S, 2764, and 27128 EPROMs. The 2716s are often used in character sets, keyboard maps, and with the proper adapters can be used in an Apple II. 2732s can be used for character sets on the IIe or IIc, among other purposes. 2764s are compatible with the IIe's program ROMs, and the 27128 is compatible with the IIc.

The RP525 is much taller than other Apple interface cards. When it is plugged in, you cannot put your cover on

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Ask The Guru
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demand" as they are used, rather than tying up money in horrendous minimum orders.

Best of all is the ability to make a "small change" at the last minute without any cost or hassle. Run that one by your local printer.

And my wife Bee has really gotten into custom printing in a big way, doing bumperstickers, badges, logos, certificates, menus, batik patterns, greeting cards, letterheads, data sheets, business cards, and whatever for local people.

In fact, the only negative thing I've noticed is how the Laserwriter absolutely and totally dominates your lifestyle once you have one. This beast is clearly and obviously both physically and psychologically addictive.

Chapters of Laserwriters Annoynmous are bound to start cropping up everywhere, followed by Laserwriter rehab centers, withdrawal clinics, the whole bit.

A toner junkie is not a pretty sight to behold.

Anyway, how do you get started on all this?

As with any field, reading the trade journals, magazines, and reference books are the best place to start. And, wonder of wonders, many of the personal publishing information sources are absolutely free.

Let's see. First you should start off with my free laser printing demo pack which you can get by calling or writing.

After that, there are two "must have" books. No, I did not write them, but I hope to contribute to the same series in a big sort of way.

These two are called the *Postscript Reference Manual* and the *Postsript Tutorial and Cookbook*. Both should be available in your local bookstore, or directly from Addison-Weseley through their newly changed toll-free number. Pricing is around $18 each.

As we saw in the previous question, important examples of Postscript printers are the Laserwriter Plus and the Allied Linotron 300. One example of a non-Postscript speaking printer would be the Model 28 Teletype.

Back to the literature. Probably the best magazine specifically for personal publishing was Tony Bove and Cheryl Rohdes' *Desktop Publishing*. This has since gone big time as *Publish!* and is now brought to you by the *PC World* people.

There are two free house organs you will definitely want to pick up. One of these is Colophon, which is put out by Adobe Systems. This beauty has far and away the most outstanding examples of laser printing art available today.

The other free house organ has to be both the most fantastic and the most bizarre magazine ever published

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MACINTOSH

MacUniverse

by UniVerse Master
L.J. Kutten

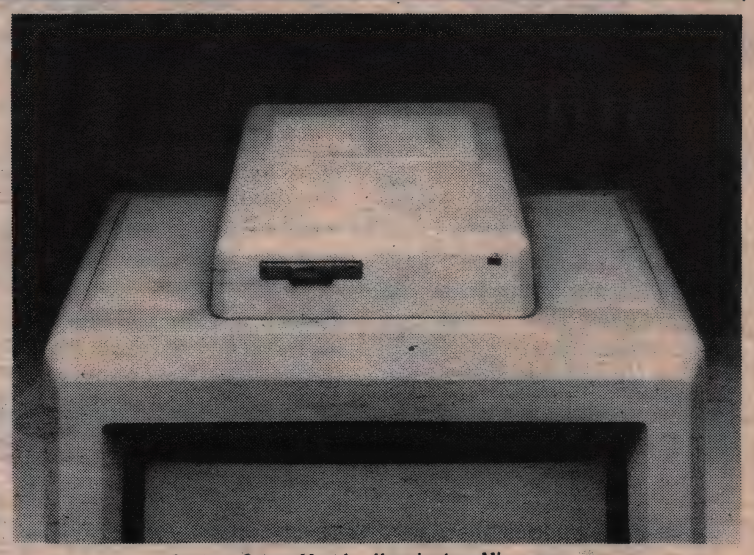
Somebody Up There Does Not Like Me: I have been lucky when it comes to computer equipment. For years, I have friends whose computers constantly needed service. I could never understand their tales of woe. Before I got a Macintosh mine never broke. The most I ever had to do was align the drive heads every two years. Well gentle readers, my years of good luck finally ran out. In the past two months, I have had nothing but trouble with every piece of Macintosh equipment I own. First my upgraded MacBottom hard drive died, then I bought a defective Macintosh Plus, and finally my LaserWriter Plus upgrade failed. So far I have gotten a new hard drive, a new Macintosh Plus, and am still trying to get the LaserWriter Plus fixed.

This experience has truly been an eye-opener for me about the third rate service many Apple dealers give. Take my problem with the Macintosh Plus. The first unit had major problems. It would fail to turn on, randomly crash, lock up programs, destroy files, and the like. The first time I took it in to my dealer, I complained that sometimes the unit would not turn on but if I jiggled the unit, it would. Now it does not take a degree in electrical engineering to know this signifies either a loose connection or a bad power supply. What does my dealer do? Its service technician keeps it in the shop for two days, turns the unit on once and sees that it works. Therefore, according to the logic of repair service, he decides there is nothing wrong with it and returns it to me as is. Three days later, I come back again with the same problem. This time he actually checks out the power supply and sees it is bad and replaces it. A week later, I am back again with two specific problems; first, my LaserWriter (this is before I had it upgraded to the Plus) decided it was neat to occasionally overprint an entire page on one line; secondly, the screen would occasionally go blank after saving a document. At 3:00 p.m. I dropped the unit at the dealers for service. At 3:20 I received a call from the service technician who told me my problem could not be the Macintosh as he had just printed one (!) document on a laserwriter and saved a 16K document to disk. It was his opinion that all my software was bad and that it had to be replaced. If I had any more problems I should contact Apple. Now those of you who have contacted Apple with a problem know the futility of this. Contacting Apple directly with a service problem is like talking to a brick wall. Apple's only response is to tell the customer to contact the dealer. It does not like to intervene. Luckily for me, I still had some power over the dealer (I had not yet paid for the unit) and was able to exchange the defective Macintosh Plus for a new unit (which has worked flawlessly for the past two weeks with the same software).

Mea Cupla: It appears I have been in error referring to the Macintosh Plus as the "Macintosh + ." I was attending a St. Louis users group meeting when a fearless reader accused me of taking the Mac's name in vain. A quick phone call to Apple's corporate office indicated the "Macintosh +" name was indeed wrong. I stand corrected and I promise this will not occur again.

New Apple Software: If you have a Macintosh Plus, new versions of the Finder and System file are available. The Finder is version 5.2 and the System is 3.1.1.

According to a Microsoft spokesman, these new files are mandatory if you use any of their products software. You can tell if you have the Finder version 5.2 by checking the "About the Finder" under the Apple at the Desktop. These are two ways to determine what system version you have. The easiest is to check the date on the system file. If it is February 28, 1986, you have version 3.1.1. Another way is to get a public domain application program called System Version. Run it and a dialog box with the system version appears. This program should be available at most users group and can be found on Compuserve, the Source, and Genie networks.



System Saver Mac by Kensington Microware

LaserWriter Update: If you have a LaserWriter, get version 3.0 or later of the LaserPrep and LaserWriter files. Among bugs/improvements fixed by these new files are (1) the ability to reduce down to 20% the size of a document

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Current Releases of 266 Macintosh Software Packages

by Price M. Collins.

TYPE:
a = Apple
c = commercial
p = public domain
f = free, but copyright
s = shareware (pay author directly if you use it)
+ = known to be Mac + ok
− = known to be Mac + bad

PROGRAM NAME	VERSION	TYPE	PUBLISHER
Accessory Pak1	1.0	c	Silicon Beach
Airborne!	1.0	c	Silicon Beach
Analog Clock	1.11	s	Erez Anzel
Anywhere RamDisk	1.0	s	Larry Robinson
AppleLink	3.3x	c	Apple
AppleTalk to IW	2.2	a+	Apple
Astronomy	2.8	c	E&M Software
Aztec C	1.06g	c+	Manx
Balance of Power	1.03	c	Mindscape
Basic compiler	1.0a	c+	Softworks
Basic interpreter	2.1	c+	Microsoft
BatteryPak	1.1	c	Batteries Included
BinHex	5.0	s+	Mainstay
Boot Blocks	1.1	p	Apple
Boston Font II	2.0	s+	
B-Tree Helper	1.4	c	(M)agreeable
Bulk Mailer	2.02	c	Satori Software
Calendar Maker	1.2	s	CE Software
Captain Magneto	7	s	Al Evans
Championship Boxing	1.0	c	Sierra
Chart	1.05	c	Microsoft
ChipWits	1.1	c	BrainPower
Choose Printer	1.5	a	Apple
Chooser	2.2	a+	Apple
Click Art:Effects	1.0	c+	T/Maker
Click/On Worksheet	1.3	c	T/Maker
ColorPrint	1.2a	c	Esoft Enterprises
Comet Halley	2.2	c	Great Wave
Communique	2.0		
Compact	1.0	p	Steve Brecher
ConCode	1.3	s	John Stokes III
ConcertWare+	3.1	c+	Great Wave
Copy II Mac	5.1	c+	Central Point
Crunch	2.0	c	Paladin
DataFlow	0.0	p	Gustavo Fernandez
Date Key	2.0	p	Loftus Becker
Day Keeper Calendar	1.55	c+	Dreams of Phoenix
Deluxe Music Const. Set	1.0	c+	Electronic Arts
Desk Accessory Mover	1.4	s	CE Software
Diatom	1.0	s	Capener
DiskInfo	1.41	s+	Maitreya Design
Disk Ranger	2.1	c	Mainstay
Dollars & Sense	1.3	c	Monogram
Dungeons of Doom	3.0	s	John Raymonds
Edit	2.0d1	a+	Apple
Enchanted Scepters	1.0	c	Silicon Beach
Ensemble	1.0	c	Hayden
Epstart	2.0	c	SoftStyle
Excel	1.01	c+	Microsoft
ExperLisp	1.04	c	ExperTelligence
ExperLogo	1.1	c	ExperTelligence
Extras	1.5	s	Bob Luce
Factfinder	1.1	c	Forethought
Fahrenheit 451	1.0	c	Telarium
Fast Finder	2.1	c	Tardis
Fedit	3.8	a+	John Mitchell
File	1.02	c+	Microsoft
File Diddler	1.0	p	Scott Watson
Filevision	1.0	c	Telos
Finder (MFS)	4.1	a	Apple
Finder (HFS)	5.2	a+	Apple
First Base	2.6	c	Desktop
FixHex	1.0	f	Carlos Weber
Flight Simulator	1.0	c+	Microsoft
Fokker Tri-Plane	1.0	c	PBI Software
FONTastic	2.7	c+	Altsys
Font/DA Mover	3.1	a+	Apple
Font Display	3.1	s+	Jeffrey Shulman
Font Doubler	1.3	p	William Pugh
FONTographer	1.1	c+	Altsys
Fontsie	1.3	p	Loftus Becker
Forecast	1.1	c	Monogram

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MacExpo Show

by L.J. Kutten

Between April 25 and 27th Chicago was the home of the largest Macintosh show ever held in the midwest. Called the MacExpo and sponsored by MACazine, more than 75 exhibitors displayed their wares in McCormick Center's Donnelly Hall. Of the 75, nearly 60 had Macintosh products for sale. The rest were user groups and magazines.

The show consisted of two parts: the selling floor and conferences. The selling floor was chock full of companies demonstrating their products. Unfortunately there were few new products shown. The conferences were abysmal: most were nothing more than glorified press conferences where exhibitors explained how to use their products. For example, Odesta demonstrated its series of Helix database programs; Doug Clapp described his forthcoming program aimed at professional writers called "Dog Clapp's Word Tools"; and Don Brown, chief programmer of CE Software and developer of the Mock software series lectured on shareware software.

Some of the booths and companies were interesting in and of themselves. I would love to know what market researcher picked the name of Blowhard Industries for the manufacturers of a Macintosh fan. Mac Underground displayed a 1953 Buick with a Macintosh built into the dashboard (just what I wanted for my birthday). And the honchos at MacUser can sleep at night knowing they have succeeded in creating a hell on earth for any company unlucky enough to be next to their booth: they had a Videowork demo with the most atrocious sound track I have ever heard. All day long it went "rat tat tat." It was enough to drive a person to drink.

After wandering the hall for two days, I had picked up two bags of press releases and new products. The summaries that follow are my pick of what was new (at least to me) and unique at the show.

New Hardware

MouseEase Pads: MouseEase consists of four Teflon pads that attach to the bottom of the mouse. When I first saw them, the manufacturer gave me what I thought was the standard sales spiel on how revolutionary their product was. They claimed it improved the feel and movement of the mouse. I took a set home and much to my surprise, it does work! The difference between before and after MouseEase is startling. Most of the mouse dragging feeling is gone. At $2.95, MouseEase is a gamble everybody can afford to try. And if you do not like the pads, just peel them off.

PLUS Hard Disk: The PLUS Hard Disks are a new SCSI hard disk units developed by Peak Systems of Austin, Texas. The units are so new that neither I nor any of my contacts had ever heard of it or the company before the show.

According to Peak the Plus drives comes in two configurations. There is the PLUS-20 with 20 megabytes of storage and the PLUS-30 wth 30 megabytes. The PLUS-20 has a suggested price of $1195 and the PLUS-30 has a suggested price of $1595. Both units come with a 30-day money-back guarantee. If for any reason you are unsatisfied with a PLUS drive, return it for a complete refund.

Both units are the same size and designed to fit underneath the Macintosh Plus. They will raise the height of a Macintosh 3.5 inches. If you have a computer desk with a top over your Macintosh, it may be a tight fit.

The Plus units operate similarly to Apple's HD20 in that they do not use volumes or partitions. All the information stored on the drive is available at any time. The unit is preformatted at the factory and will boot the Macintosh Plus directly the first time it is turned on.

The most negative thing I can say about the Peak units is that Peak only warrants the units for 30 days. This is much shorter than the industry norm of 90 days.

QuickDrive: A QuickDrive by Aloha Systems is an external self-contained RAMdisk for 128K Macintosh, 512K Macintosh, and Macintosh Plus. Merely plug the QuickDrive unit into either the modem or printer port and power it up.

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Current Releases of 266 Mac Software continued from page 63

Fortran	2.1	c	Microsoft
FreeTerm	1.8	p+	Dreams of the Phoenix
Frogger	1.0	c	Sierra On-Line
Front Desk	1.0	c	Layered
Fullpaint	1.0	c	Ann Arbor Softworks
Gato	1.3	c	Spectrum Holobyte
Ground Zero	2.2	c	General Computer
Hard Disk Util	1.11	c+	FWB Software
Helix	2.Or5	c	Odesta
Home Accountant	1.03	c	Arrays
ImageWriter	2.2	a+	Apple
Installer	2.1	a+	Apple
Interlace	1.0	c	Singular
InterMac Bumper Ships	1.1	p	Harry Chesley
In Touch	2.1	c	Palantir
Jazz	1.0	c+	Lotus Development
Just Text	1.0i	c+	Knowledge Engineering
Keyboard	0.1	f	Loftus Becker
LaserPrep	3.0	a+	Apple
LaserWriter	3.0	a+	Apple
LAZlife	2.0c	s	Larry Hutchinson
Legal Billing	1.12	c	Satori
Life	1.1	p	David DeMars
Lister	1.1	p	Jarvis/Bechtel
Localizer	1.0	a	Apple
Lode Runner	1.0	c	Broderbund
Logo	1.0	c	Microsoft
Mac.68K Assembler	1.0A	s	Cyclan
MacASM	1.2	c	Mainstay
MacAttack	1.4	c	Miles Computing
MacBackup	3.0	c	Practical Computer
MacBase	1.0	c	Eqtron
MacBasic	1.0	?	Apple
MacBridge	2.1	c	Tangent Tech.
MacBooster	–	c	Mainstay
Mac C	4.5	c+	Consulair
MacChallenger		c	Aegis
MacDraw	1.9	a/c+	Apple
MacDraft	1.3	c	Innovative
Mac Hangul-III	2.10	s	Kong Keyboard
MacIndex	1.0	c	Boston Soft. Publ.
MacInHebrew		s	MIT Hillel Soc.
Macintosh Pascal	2.0	c+	Apple
MacLabeler	2.0	c	Ideaform
MacLink	1.14	c	DataViz
MacManager	1.00	c	Harvard Associates
MacMate!	1.0	c	Development Assoc.
MacModel	3.0		Synoptics
MacModula 2	4.0	c	Modula
MacMusic	0.1	c	Utopian Software
MacNAPLPS	1.4	c	Electrohome
MacNosy	2	c+	Steve Jasik
MacPacket/KANterm	1.0		Brincomm
MacPacket/TAPRterm	1.1		Brincomm
MacPacket/TNC2term	1.1		Brincomm
MacPaint	1.5	c+	Apple
MacProject	1.0	c	Apple
MacPublisher	2.0	c	Boston Software Publ.
MacRecorder II	2.2		Berkeley BMUG
MacroMind Utility Disk	1.0	c	Hayden
MacSlots	1.0	c	Soft-Life
MACSnVAX	4.2		Eye Research Inst.
MacSpell+	1.1	c	Creighton Development
MacTerminal	2.0	c+	Apple
MacTest	3.4	?	Apple
MacTracks	2.0	c	Assimilation
MacVegas	1.0	c	Videx
MacVision	1.1	c	Koala
MacWait	1.1	+	
MacWrite	4.5	c+	Apple
Mac Zap	4.1	c	MicroAnalyst
Magic Digitizer	1.2	c	New Image Tech.
MailManager		c	SoftTech Microsystems
Mass Copier	1.1	s	CE Software
McAssembly	3.1		Signature Software
McBUG	1.1	s	David McWherter
MCS	1.0a	s	
MCS Editor	1.0	p	
MCS edit	1.0	p	
MegaFiler		c	Megahaus
MegaForm	2.0	c	Megahaus
MegaMerge	3.0	c	Megahaus
MegaTrack	2.0	c	Musicworks
MemTest	1.7	?	Apple
Menu Clock	1.1	s	Mosaic Codes
Microphone	1.0	c+	Software Ventures
MIDI Composer	1.0	c	Assimilation
MidiMac CZ Librarian	2.01	c+	Opcode Systems
MidiMac Sequencer	2.0	c+	Opcode Systems
MidiWorks	1.0	c	Musicworks
Micro Earth Plot	2.0	p+	Peirce/Gosnell
MiniAda	1.0	f	Andromeda
MITE	2.91	c	Mycroft Labs
MockChart	1.0	s	CE Software
MockPackage	4.2a	s+	CE Software
MockPrinter	4.2a	s+	CE Software
MockTerminal	4.2a	s+	CE Software
MockWrite	4.2a	s+	CE Software
Mouse Enchange BBS	4.0	c	Dreams of Phoenix
Mouse Exchange Terminal	1.4	c+	Dreams of Phoenix
Mouse Stampede	1.0	c	Mark of the Unicorn
Multiplan	1.1	c	Microsoft
MusicWorks	1.1	c+	Hayden
myDiskLabeler	2.0	c+	William & Macias
Namer	2.1	a+	Apple
N'cryptor	1.0	c	Mainstay
Neon	1.5	c	Kriya
Omnis III	3.1	c+	Blythe
Other DA's...	1.6	f	Loftus Becker
OverVUE	2.0d	c	ProVue
PacPaint	1.0	c	Mainstay
PackIt II	1.0	s+	Harry Chesley
PageMaker	1.2	c+	Aldus
Paint Cutter	1.0	c+	Silicon Beach
PaintMover	0.03	p	Bill Steinberg
ParameterRAM	–	s	Ken Winograd
Patch Disk	1.0	p	George Cossey
Pensate	1.1	c	Penguin
Performer	1.0	c	Mark of the Unicorn
pfs: file	A.03	c	Software Publishing
pfs: report	A.03	c	Software Publishing
Power Cache	1.9	c	Fractal Software
PowerMath	1.0	c	Brainpower

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HEATH/ZENITH

Expansion For The Z-138 & Z-148 Using The Ampro 186 PC- DOS Little Board Part I

by Peter Ruber

The Z-138 and Z-148 from Heath/Zenith are very likable entry-level computer systems, made much more so by their under $1000 price-tags. You get a system that can be expanded to 640K RAM, Monochrome and RGB color outputs, one RS232C Serial Port and a Centronics Parallel Port for attaching external peripherals.

We are told by the literature that these systems can be expanded by the addition of an expansion slot that fits neatly inside these computers at a cost of $99. And that's what isn't so likable about these computers.

Bear with me. Zenith's first venture into the portable PC compatible computer market was with the Z-161PC, a neat unit whose top lid popped up to reveal two disk drives. At 30-plus pounds, it was criticized as being trans-luggable, and it was dropped from the line about 18-months later. This unit had 4 expansion slots for add-on cards if they were ever needed by the user.

In its place came the Z-138, weighing in at about 20 pounds, but gone were the expansion slots. A spin-off of this concept—a twin set of mother boards—was embodied into a disk-top version they called the Z-148.

From a purely financial point of view, neither of these systems can be beat by anything on the market, except for some "clones" emanating from Taiwan, that may lack FCC Certification.

But once you go past the learning stage and begin to be tempted by the flood of accessory boards available for PC compatible computers, the costs do mount up and you may wish you had opted for bigger bucks in the first place and purchased an expandable Heath/Zenith PC computer.

For all of you (like me) who don't always find themselves in a position to plunk down $2,000 or more, a Z-138 or Z-148 is an ideal solution; and based on some recent finds the future expansion of these systems may not be as bleak as they might appear to be.

The Ampro Connection

As part of my Winchester /'89 column for *REMark* I devoted an article on interfacing the Ampro 186 PC-DOS Little Board computer to an H/Z-89 in terminal mode. Having developed more than a fascination with the Little Boards, I began writing about them for other magazines, which in turn led to my being asked to write a bi-monthly column for the Computer Journal.

During my Ampro Little Board researches I was given a software package from Wordcraft called SUPER DUO, which was designed to allow a standard IBM-PC compatible computer to be used as a terminal for the Ampro 186 PC-DOS board. What made SUPER DUO unique was that it did not disable the PC's computing functions in the process. By this I mean you can use your Zenith PC independently of the Ampro 186, both can perform independent tasks at the same time, files can be transferred back and forth, and screen access and control of each system is made by a single "control key" toggle.

The Ampro 186 PC-DOS board costs $495. For this nominal sum you get 512K RAM, 2 RS232C Serial Ports, a Centronics Parallel Printer Port, a Floppy Disk connector that will accept up to four 40- or 80-track DS/DD drives, a SCSI hard disk interface, a ROM BIOS that is fully compatible with IBM's own PC-DOS 3.0, and super-charged Intel 80186 CPU that runs at 8-Mhz. The whole works are on a board that was designed to mount directly on a standard 5.25" floppy drive.

Considering that it costs $249 to install the second serial port inside the Z-148 (H/Z part number Z-304), you may find the prospect all getting a full-blown co-processor in the Ampro 186 even more attractive.

When I had finished reading the SUPER DUO documentation, I knew I could turn my Z-138 (as I did with my H/Z-89) into an extraordinary machine. And after the installation had been completed, not only did I have an additional port and another 512K RAM to play with, but also a Winchester drive.

The Installation

The procedure I'm going to outline may seem a bit involved, but it is quite straightforward and doesn't require any kind of modification to the Z-138. Although all my references will be made to the Z-138, they can be applied to the Z-148 as well.

You will need the following:

1: The Ampro 186 PC-DOS Little Board

2: A copy of IBM PC-DOS 3.0

3: A floppy drive power "Y" connector

4: A female DB-25 ribbon connector

5: 3' section of 25-wire ribbon cable

6: A 6-socket Molex-type shell connector (Molex #22-01-2067, and 4 spring contacts, #08-50-0114)

7: A 4-socket Molex-type shell connector (Molex #22-02-2047, plus 4 spring contacts)

8: A small LED

9: A SPDT Momentary Contact Switch

10: 2/34-pin Edge Card Connectors

11: A 7" length of 34-wire ribbon cable

12: 24 or 28 gauge stranderd hook-up wire

This is the basic parts list for an Ampro 186 installation using one of the Z-138's floppy drives for the Ampro 186 board. Parts required for the hard disk installation will be described separately later in this article.

Perform the following steps:

1. Prepare 2 lengths of 24" hook-up wire by stripping 1/8"

continued on page 152

Expanding Your Heath/Zenith PC

by Ted Drude

This month, we're going to review a couple of new hardware products for your H/Z PC-compatible. We'll be looking at the PC-Sprint speed-up board from Exec-PC, and another innovative PAL chip for H/Z-150s called COM3 from FBE Research. We'll also be looking at some of our readers' mail, as usual.

Attention All H/Z PC-compatible Owners: This is YOUR Column!

We want All Heath/Zenith PC-compatible owners to know that this is YOUR column. It's not just for the H/Z-150 ONLY. In the past, I've often referred to Heath/Zenith PCs, in general, as the "H/Z-150" series. I've really meant to include ALL the H/Z PC-compatibles (including the 160, 138, 148, and 158 series). There's enough similarity between these models that most of the information in this column applies to all of them. (If the difference between the models is important, I'll usually make a note of it.)

I'd also like to acknowledge the many other PC-compatible owners who've written to express their interest in this column. I hope you continue to find useful information for your systems here, too.

Feel free to write me, c/o the *Computer Shopper*, with any comments, questions, and observations you might have. If you're in a rush, you also can contact me by mail at: Drude Micro Services, P.O. Box 533, Cedar Falls, IA 50613.

A couple of comments on writing in: First, unless you include a SASE (self-addressed stamped envelope), I cannot give you a reply in writing, (but your letter will still be considered for publication).Second, all letters automatically become property of me (and the *Computer Shopper)* and are subject to reasonable editing (for length and clarity).

"Reader Disk" Still Available

In case you are wondering, as a service to our readers, I'm still providing MS/PC-DOS formatted disks containing a tutorial on the NEC "V" chips, a CPU timer benchmark program, and a couple of Public Domain/Shareware CP/M emulators for $5.00 postpaid. Please send your requests to the above address. Make your check or money order payable to "Ted Drude" and write "Attn: Zenith Reader Disk Offer" on the envelope.

More On Inexpensive CPU Speed-up Boards

A couple of months back we looked at some inexpensive CPU speed-up options. I reviewed a low-cost board that claimed to boost my old 4.77 Mhz 8088 CPU to a new level of performance (almost on par with the new 8Mhz Z-148s and 158s). When I received the board, I was disappointed to find that it wouldn't run (reliably) on my machine.

From the letters I've received from our readers, it appears that many (if not most) H/Z-150s can't run this board, or others like it. Since then, I've been studying the problem and have found out (with help from some of our more knowledgable readers, no less) that part of the problem is the method they used to speed-up the CPU.

The "Sledge Hammer" Approach

The board I previously reviewed uses what I call the "sledge hammer" (or "brute force") approach to CPU speed-up. Using only a crystal oscillator circuit and a switching arrangement, it forces the entire internal "clock" system of the computer to a higher frequency. This is least expensive (and least reliable) method of increasing the CPU clock frequency. But, in fairness, it's also, potentially, the fastest.

The drawbacks of this "sledge hammer" approach are two-fold. First, it not only drives the CPU at a higher clock rate, but it also forces all the other "CPU support chips" to run faster. If you have some marginally rated support chips

continued on page 153

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You can't learn to program in C without a good book and a good compiler. You can buy other C books but they don't include a compiler. You can buy other C compilers but they don't include a book. Either way you spend a lot of bucks and the compiler might not do what the book says it should. With MIX C you don't have to worry. You get both a good book and a good comiler for just a few bucks. And we guarantee that the compiler does what the book says it should.

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abs	conbuf	feof	getcseg	isascii	movmem	replace	strcat
asm	conc	ferror	getdseg	iscntrl	open	repmem	strcmp
asmx	cos	fflush	getd	isdigit	outp	rewind	strcpy
atan	cpystr	fgets	putd	islower	peek	right$	strlen
atof	creat	fileno	getdate	isprint	perror	rindex	strncat
atoi	cursblk	filetrap	gettime	ispunct	poke	rmdir	strncmp
atol	curslin	find	geti	isspace	poscurs	scanf	strncpy
bdos	curscol	floor	puti	isupper	pow	setbuf	strsave
bdosx	cursrow	fopen	getkey	itoa	printf	setbufsiz	system
bios	cursoff	fprintf	getmode	keypress	putc	setcolor	tolower
biosx	curson	fputs	setmode	left$	putchar	setdate	toupper
calloc	delete	fread	gets	len	puts	settime	ungetc
ceil	drand	free	getw	log	putw	setjmp	ungetch
cfree	exec	freopen	heapsiz	log10	rand	setmem	unlink
chain	execl	fscanf	heaptrap	longjmp	read	sin	write
character	execv	fseek	hypot	lseek	readattr	sound	writechs
chdir	exit	ftell	index	malloc	reach	sprintf	xmembeg
chmod	exitmsg	fwrite	inp	alloc	writech	sqrt	xmemend
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close	fabs	getch	iofilter	mid$	writedot	sscanf	xmemput
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cmpstr	fdopen	getchar	isalpha	modf	rename	str$	_exit

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The editor works terrific with our C compiler. The MSDOS/PCDOS version has a macro for compiling direct from memory. If your program has an error the editor positions the cursor to the error and displays an error message. You can also run other programs and execute DOS commands. Because the editor works so well with our C compiler we want to make sure you have both. For a limited time we're offering the editor for only $15 when purchased with the C compiler.

ASM Utility $10

The ASM utility allows you to create your own assembly language function libraries. It works with Microsoft's MASM or M80 assemblers. It provides macros for function entry and exit so you don't have to worry about environment details. It also provides a macro for calling C functions from assembly language. Lots of useful assembly language functions are included as examples.

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ATARI ST

Applying The Multi-Window Word Processor

by Frank Tymon

Introduction

Multi-Windows provide the most practical method for quickly and easily accessing many documents, or many parts of the same document. Editing, comparing, modifying different passages; and transferring paragraphs, sentences, or the like? Among the word processors currently available for the Atari 520ST the unique multi-window capability of the HabaWriter stands out.

"So what!" you say?

Well, so that is your immediate reaction. But let's give some thought to just what multi-windows provides. What, actually, is the advantage of multi-windows over single window operation?

There are, in fact, many. To recognize them we need to think of applications, rather than generalities. First, though, we'll define the multi-window concept.

Multi-Windows

The ordinary word processor displays a single screen of data, permitting you to scroll from one portion to another if you wish to re-examine an already written bit of material. For many purposes this is adequate capability. But when complex or extensive material is written it many times becomes necessary to move data from one section to another or to combine portions of your manuscript. Or to review what you have written previously with what you are currently writing. We'll look at these and other ideas shortly.

In contrast to the single window display the multi-window word processor allows you to scroll within each of several windows. Of more importance, these windows can be independent or synchronized. Thus they can scroll in step, or one can be stationary while the other scrolls. The contents of each window may be identical to that of the other window, or from a different section of the same document—or even from a different document.

Usage

If you are using only small, single documents then multi-windows may be of limited use to you. You may well be able to accomplish all you wish using the single window. Nevertheless, using multi-windows you may still be able to more easily accomplish your work.

On the other hand, suppose you are an author, with a variety of articles to write—many using similar material, or common references. Would the multi-window capability be of advantage? You bet it would!

The average author frequently revises portions of his product. Errors creep in, and need to be exorcised. The intended meaning differs from the written passage and the latter must be re-written. Or one of a multitude of discrepancies manage to occur.

Thus it is inevitable that manuscripts require some degree of editing. While performing an edit the author needs to continuously compare one version of his product to the other version. Aha! A multi-window capability to the rescue!

On another occasion the writer senses that he is repeating previously typed material. A quick scroll in the second window locates like passages. The present entries can be modified and a more nearly marketable produce ensues.

Combined Documents

The opposite side of the coin surfaces when one wants to combine documents, either in whole or in part. And again multi-windows can be of major use. A paragraph may be extracted from one document, a sentence from another; and all merged to form the final literary masterpiece.

Articles, books, etc., can be written as separate modules. These can then be loaded into separate windows, independently modified, and eventually merged in arbitrary order. And the modules can be separately retained for other purposes, even as the combined product rolls off the presses.

Application Example

Plainly the multi-window word processor has widespread usefulness. But enough of these generalities! Suppose we walk through a typical application, using this article to illustrate some of the basic ideas.

First we load HabaWriter into the Atari 520ST. The usual icons appear and we place our cursor on Writer.Prg. See Figure 1. Once Writer.Prg is selected the program loads, our screen reflects the HabaWriter Menu, and we are ready to do our thing. For this purpose we want to use three separate windows.

Selection

To access the various windows we use the mouse to activate the File drop-down menu. Once it becomes available to us we merely select New, repeating the process for each of the windows we wish to open.

When the windows are open we can easily move from one to another by placing the mouse marker on the desired window and pressing the left button. This brings the open window to the top position.

With the window in the top position we can easily expand it for use by placing the mouse marker in the upper left corner and pressing the left button. When we want to change windows we need to drop to the lower right corner, diminish the size of the current window until the desired window is visible, then place the mouse marker on the latter and again hit the left button.

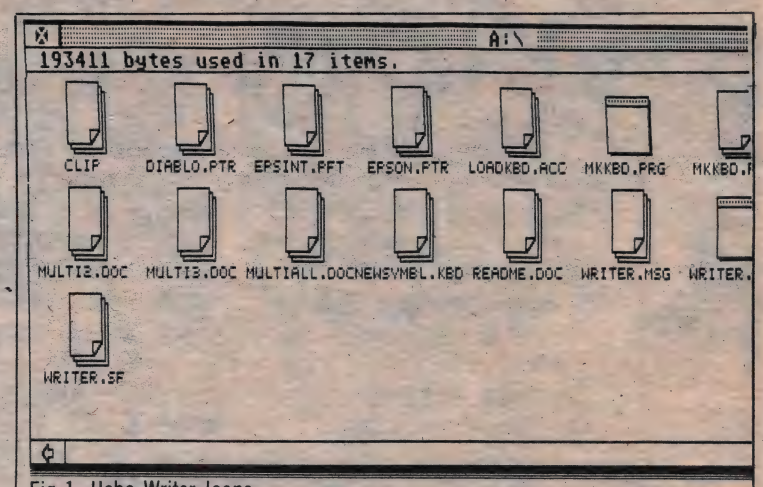

Fig 1. Haba Writer Icons

Having chosen a window we treat it as though it were the only window in use. Only when we wish to change windows or transfer data between windows need we concern ourselves with the existence of multi-windows.

When we no longer need one of the windows we can either clear the contents in full or part and use it for other purposes; or we can discard it. Purging the window is a simple matter of using the Block and cut entries under the Edit drop-down menu. Or, if the entire window is to be cleared we can use that instruction in conjunction with Block.

Block is implemented by positioning the mouse marker at the start of the material to be treated, holding down the left button, and moving the marker to the end of the block. When the button is released the entire block is highlighted, and can be moved, copied, or deleted.

It is often just as easy to delete the window and then renew it. Placing the mouse marker in the upper left corner of the window to be discarded press the left button. After a warning message you can delete the window and its contents. Returning to the File drop-down menu you can recall a new, empty window for use.

Figures 2, 3, and 4 show the File drop-down window and then the actual windows in their non-expanded form.

We begin the creation of a work of art unsurpassed in the modern journalistic world. Conceptually it might be divided into modules. With HabaWriter we need not develop the article in a lock-step sequence, but may address each module in its own window as ideas come to mind. When we are satisfied with the final product we consolidate the different portions into a unified whole. You might, depending on how your ideas flow, find yourself completing the conclusion before you begin the introduction!

In this simple illustration of the multi-window capability

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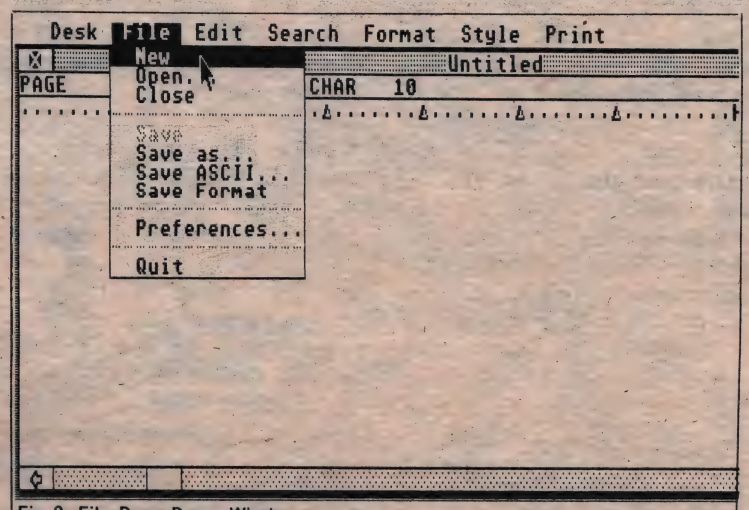


Fig 2. File Drop Down Window

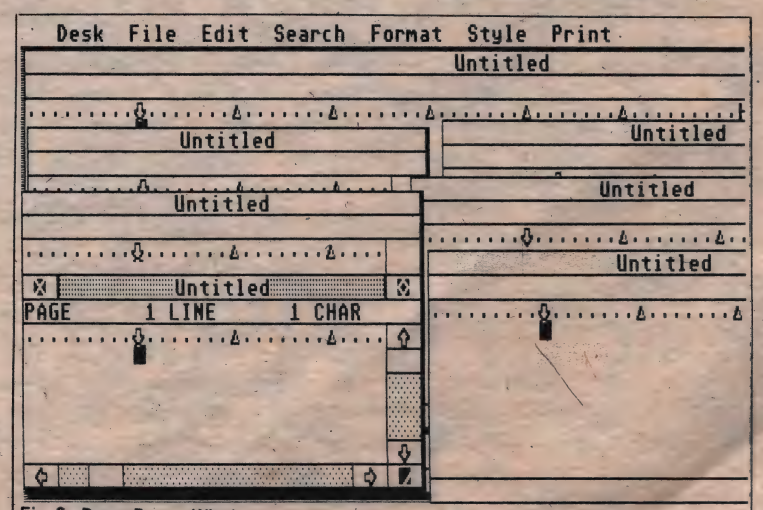
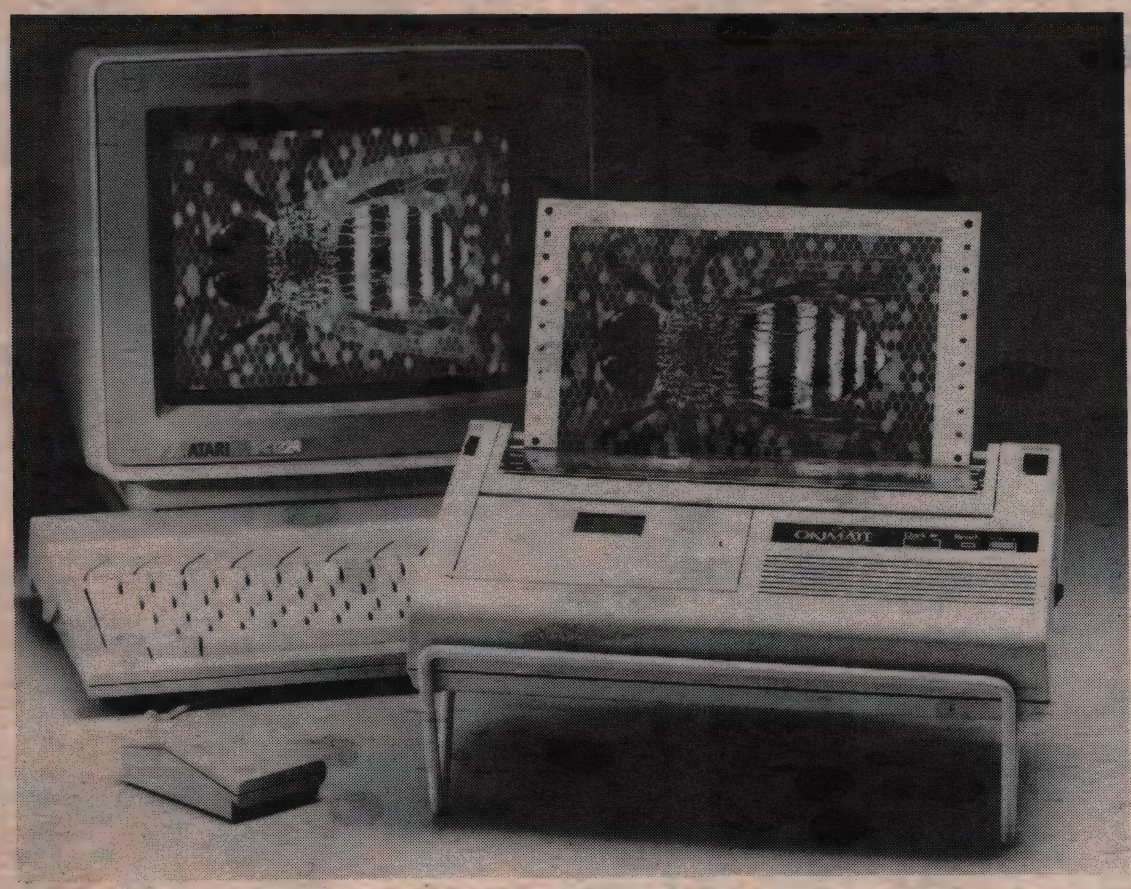


Fig 3. Drop Down Windows

Okimate 20 Prints From Atari ST



Okimate 20 Plug N' Print for ST

Okimate 20 compatibility took an important new step with the unveiling of Okidata's new Atari ST Plug 'N Print Kit for the Okimate 20 personal color printer.

The new Atari ST module connects the Okimate 20 to the power and versatility of both Atari ST series personal computers — the 520ST and the 1040ST. Atari ST users now can print more than 125 striking colors, using Okimate 20's special color ribbon, to create high resolution pictures, graphics and professional quality overheads on a variety of media including acetate.

The Atari ST compatible Okimate 20 was available in computer stores nationwide May 1, 1986. Distribution will be provided through Okidata's network of distributors.

The heart of the new Atari ST Plug 'N Print Kit is the interface module which inserts easily into the side of the Okimate 20. The kit features everything users need to begin printing immediately from their ST including a data cable, "clean hands" cartridge ribbons (color and black), sample computer paper and complete instructions.

No other outside programs are required with the Atari ST/Okimate 20 match-up. Both ST units incorporate the Okimate 20 into their respective menus allowing users to transfer full color, high resolution images directly from the screen to the printer. Introductory ST Plug 'N Print Kits provide additional support for users with a diskette that demonstrates picture capabilities of the ST as well as available fonts from both the ST and the Okimate 20.

Users can access several Okimate 20 type fonts including wide print, boldface, fine print, italics, superscripts, subscripts and underlining. The unit's unique 24-element printhead provides 80 characters per second (CPS) performance in standard type and 40 CPS in letter quality mode. Users can print in either 80 standard columns or 132 columns using condensed type.

Pricing for the Okimate 20 remains at $169, and the suggested retail price for the Atari ST Plug 'N Print Kit is $99, bringing the total price to $269.00. Other popular personal computers also may be used with the Okimate 20 by purchasing the appropriate Plug 'N Print Kit. Kits are available for the IBM PC, PCjr., Apple IIe, Apple IIc and Commodore Amiga.

For further information, contact Okidata, 532 Fellowship Road, Mt. Laurel, NJ 08054; (609) 235-2600, TWX: 710-897-0792.

Mention that you read about it in *Computer Shopper*. ●

Hacking The ST

by Wynn Rostek

I have one of the Atari 20 megabyte hard drives on our main development system. This has greatly increased the worry in my life. We're in one of the United States top lightning areas. (Brevard County, Florida) In June, July and August, we have almost daily thunderstorms of tremendous proportion, which have to be seen to be appreciated. Several friends have lost hard drives on a variety of systems when the power dropped unexpectedly.

As a result of their experiences, I know the dangers associated with powering down a hard drive. Every time you turn a drive off, the head does a "controlled" crash on the disk surface. A friend that services expensive CAD/CAM systems convinced me that you should limit the number of times you cycle power on a hard drive.

Since I don't want to cycle the power on the system every time I'm going to be called away, I was left facing the prospect of having the desktop pattern burned into the CRT. CRT burn was a problem that many of the early video games had. If you leave the same unchanging picture on the screen for long periods, eventually it "burns" the phosphor, and you can still make out the image even when it isn't displayed.

To get around this problem, later games had a "demo" mode where the pattern on the CRT cycled. This greatly decreased the burn problem. You will note that the desktop is a static display. If left on long enough, it too will burn into the CRT phosphor. I used to get around the problem by turning off the monitor when I was not going to be using the machine for a half-hour or more.

The problem with this solution is that it is not a great idea to be cycling the power on the CRT all the time. The CRT is the only tube in modern monitors. Tubes work by controlling the flow of electrons through a vacuum present inside them. (Why do you think they were called vacuum tubes by Americans? The British referred to them as "valves.") The tubes generate the electrons by heating a cathode with a filament. The filament is very similar to the filament of a lightbulb.

The filament is thin wire that is heated by the current passing through it to thousands of degrees. Metal expands when heated, and it contracts when it cools. This expansion and contraction can lead to great stress within the metal. The stress can lead to premature failure. Henry Petroski in *To Engineer is Human* says, "A bulb that has burned continuously for decades may appear in a book of world records, but to an engineer versed in the phenomenon of fatigue, the performance is not remarkable. Only if the bulb had been turned on and off daily all those years would its endurance be extraordinary, for it is the cyclic and not the continous heating of the filament that is its undoing."

Too much knowledge can often lead one to become stuck between the preverbial rock and a hard spot. Is it better to let the desktop become burned into the phosphor ruining the aesthetics of the display, or to cycle the monitor power and risk the failure by fatigue of the CRT filament, that is the question. (Apologies to the Bard.)

Thankfully, we have a third option, one that is inexpensive and easy. I will present a program, blank.prg, that solves this little dilemma. The xbios 7 call of the ST presents a way to change the colors displayed by using the color value as an index into a table of colors. This approach is very common today.

Even though the ST in medium resolution can only display 4 different colors at a time, and in low resolution can display only 16, the actual colors displayed are chosen from a palette. The palette in the ST can hold 16 colors. The colors on the CRT are made by selecting different combinations of the three primary colors Red, Green, and Blue.

A note to the curious that always thought Red, Yellow and Blue were the three primary colors: There are really two sets of primary colors, one for additive processes and the other for subtractive processes. Pigments work by absorbing all the colors except one, the "color" they appear. A pigment that absorbs red and yellow light appears blue, because the blue light is the only light that bounces off of it, the other colors are absorbed by it. Pigments are subtractive. Light on the other hand is additive. If you mix red light with green light, you get yellow. If you mix red paint with green paint, you get MUD!

The palette generated by the ST uses 3 digital to analog converters, one for each of the primary colors. Each A to D converter is a three bit converter. A three bit converter doesn't sound like it would be too useful, but three bits gives you 8 values (0 to 7). With 8 different amounts of red, 8 different amounts of green and 8 different amounts of blue, the number of "colors" you can generate is 8 * 8 * 8 or 512!

For each color in the palette, there are 3 bits for the red value, three bits for the green value and three bits for the blue value. A color in the

continued on page 176

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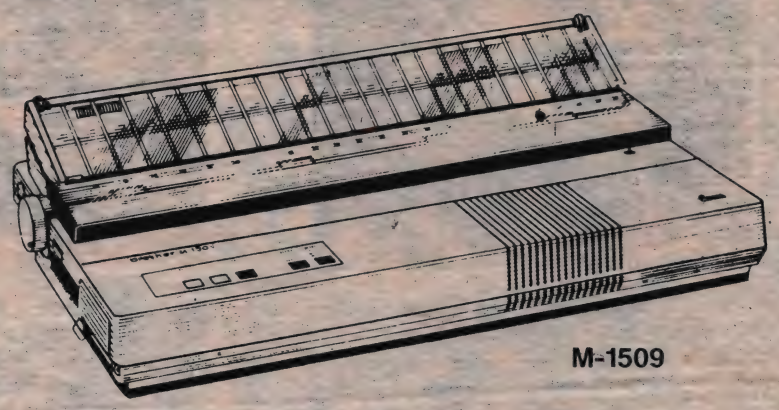
M1509 NEW	$ CALL
TWINWRITER 5	$ WOW
BROTHER ACCESSORIES	CALL



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ATARI

Applying The Atari

by Jeff Brenner

Readers often send me "Applying The Atari" programs that they've modified by adding extra features or by customizing the programs for more specific applications. This month, we'll enter two particularly useful modifications that have been submitted by readers. We'll also gain some insight into the workings of last month's BudgetMate, answer some reader mail, and start our "Reader Requests" section.

Reader Mail

Dear Jeff:

I need some help with a program that I can't get to run on my 800XL. I hope that you can help me to get it running. Here is the program:

```
10 PRINT "LINE 10"
20 FOR A=1 TO 10
30 PRINT "LINE 30"
40 NEXT A
50 PRINT "LINE 50"
60 END
```

The book says that if you have a program that prints something on the screen, but you would like to have it printed on the printer, you can type POKE 838,166:POKE 839,238 and any text that would normally be printed on the screen will be printed on the printer. It also says that to "undo" this, type POKE 838,244:POKE 839,241. The book instructs me to add these lines to the program above.

```
5 POKE 838,166:POKE 839,238
55 POKE 838,244:POKE 839,241
```

The book says to run the program and watch the printer. Line 5 instructs the computer to send the printer everything that would normally be printed on the screen. Line 55 returns everything to normal. Now when I run this, nothing happens. Can you help?

Albert G. Williams
Oakland, California

The pokes that you mention are a well-known programmer's trick that reroutes the computer's text output from the screen to the printer. However, these pokes will work on the Atari 400/800 only. The manner in which locations 838 and 839 are changed above is the equivalent of making an illegal jump into the Atari's operating system, since the computer is directed to a specific location in ROM that is not guaranteed to remain the same in future versions of the operating system. The operating system of the Atari XL/XE has been substantially revised from that of the 400/800, and consequently, this illegal jump results in a crash. Fortunately, I can offer you a simple solution:

To direct text output to the printer, use:

```
POKE 838,PEEK(58422):POKE
839,PEEK(58421)
```

To redirect output back to the screen:

```
POKE 838,PEEK(58374):POKE
839,PEEK(58373)
```

This is a more general form of the pokes that you mention, and it will work on both the 400/800 and XL/XE machines. Make these two lines 5 and 55, respectively, and your program should now direct its output to the printer (make sure it's turned on) instead of the screen.

Dear Jeff:

You advised a reader ("Atari Help," 2/86) to consider a disk drive for her Atari 400 (to simplify and speed up loading programs for her children). The Atari 400 has 16K of memory. BASIC takes up about 8K of memory. If she gets a disk drive, the DOS will take up about 5K of memory. This will leave her with about 3K. What "variety of software" can use such a limited amount of RAM?

John Pilge
Soquel, California

That's a good point. With all of the talk about 64K, 128K, and now 512K and megabytes, it becomes all too easy to forget about the 16K, and maybe even 8K machines that are still in use out there. Still, a 16K Atari diskette system will leave almost 8K of free RAM, not 3K as you say. Atari BASIC steals 8K of memory only in an Atari with 48K RAM or more. On a 48K/64K machine, the BASIC ROM displaces the RAM located at 40960 through 49151. On an Atari with less than 48K, the BASIC ROM does not displace any RAM memory, since locations 40960 through 49151 are unused on such a machine. Nonetheless, I agree that a very limited number of programs will run in this amount of RAM, and perhaps I should have suggested that the reader purchase a memory expansion board in addition to the disk drive, if she had not already expanded her 400.

Dear Jeff:

In the April 1986 issue you published the CX-85 Keypad Driver Creator (for the XL/XE). It works fine, except that I would like to have the YES key to print as a comma instead. What do I have to change in the program to have a comma using the YES key? I think other readers would appreciate this.

Yigal Feiner
Orange, New Jersey

A number of readers have asked how to define the YES key as a comma. In the original keypad drivers published in July 1985, I included a version that read the YES key as a comma to facilitate the entry of BASIC data lines: The line number could be typed with the right hand on the keypad, "DATA" could be typed with the left hand on the keyboard, and then all of the digits and the commas separating them could be typed with the right hand on the keypad. Obviously, this can be an enormous timesaver in a program with many lines of data, particularly if you have developed some keypad speed. There are two ways that the comma can be added in place of the YES key. If the keypad driver has been loaded and you are in BASIC, type: POKE 52296,32. This will change the YES key to a comma for that programming session. If you want to make this change permanent, change the second to last number on line 310 of the CX-85 Driver Creator from 43 to 32. Then run the program to create a new driver. This driver will now support the comma in place of the YES key.

Reader Requests

Readers have been so responsive and helpful in the past in discovering software items such as genealogical programs, and hardware products such as memory expansion boards, that I will now be including this section from time to time to help readers locate hard-to-find Atari items, or even to learn if such items exist. If you can help any of these readers, please write! I'll relay your message directly to the person seeking help, and I'll print the information in a future issue for the benefit of other readers. Please correspond directly with those readers whose full addresses are given.

Q. I am looking for a program where I can use my printer (Gemini 10X) to print bar codes on labels or on card stock. Can anybody lead me in the direction for such a program?

Tom Ashton
Winchester, Virginia

continued on next page

Listing 2

SCREEN WINDOW ROUTINE

```
10  *=$600 ; RELOCATABLE
20 ; SCREEN WINDOW ROUTINE
30 ; COPYRIGHT 1986 JEFF BRENNER
40 ; Opens window over specified area of GR.0 screen
50 ; Contents of window exchanged with string
60 ; FORM A=USR(WINDOW,ADR(W$),X,Y,L,H)
70 ; Where W$ is string exchanged with window
80 ;       X,Y is pos. of window
90 ;       L,H are length & width in characters
```

continued on next page

Listing 1

INVERSE LINE ROUTINE

```
10  *=$600 ; RELOCATED
20 ; INVERSE LINE ROUTINE
30 ; BY JEFF BRENNER
40 ; Highlights section of screen line
50 ; by changing to inverse video characters
60 ; FORM: A=USR(INVERSE,X,Y,L)
70 ;       where X,Y is screen position and
80 ;       L is # of characters to inverse
90  PLA
0100  PLA
0110  PLA
0120  TAX
0130  LDA 88
0140  STA $D0    ; TEMP SCREEN ADR HOLD, LOW
0150  LDA 89
0160  STA $D1    ; TEMP SCREEN ADR HOLD, HIGH
0170  PLA
0180  PLA        ; GET SCREEN LINE VARIABLE (Y)
0190  TAY        ; REG. Y NOW HOLDS LINE NUMBER
0200  BEQ NEXT ; INVERSE FIRST LINE
0210 LOOP CLC
0220  LDA $D0
0230  ADC #40;ADVANCE TO NEXT LINE (40 BYTES)
0240  STA $D0
0250  LDA $D1
0260  ADC #0  ; ADD W/CARRY
0270  STA $D1
0280  DEY
0290  BNE LOOP
0300 NEXT CLC
0310  TXA
0320  ADC $D0
0330  STA $D0
0340  LDA $D1
0350  ADC #0
0360  STA $D1
0370  PLA
0380  PLA
0390  TAY
0400  DEY
0410 CONT
0420  LDA ($D0),Y
0430  EOR #128 ; EOR TOGGLES INVERSE ON/OFF
0440  STA ($D0),Y
0450  DEY
0460  BPL CONT
0470  RTS     ; ALL DONE
0480  .END
```

Applying The Atari
continued from page 71

Q. I would be very interested in contacting with other AMDEK drive owners. As you may know, there was almost no software published in this 3" drive format. Perhaps we could compare notes, share information and swap programs. Please print my request in your column along with my mailing address. I'll do my very best to answer all letters received. Maybe someone will even have some disks to sell! My local source has dried up.

John W. Hawkins
64 Park Drive, Apt. C
Dayton, OH 45410

Q. I would like to obtain the Cosmatic Atari Development Package by John R. Powers, III, but this APX program is no longer available. Can anybody tell me where I might obtain this program or how I may get in touch with the author? Atari seems to have no information on either the program or the author anymore.

A.J. Rossell
Milford, Michigan

Q. I'm looking for three products for my Atari 130XE. The first is SCRAM a nuclear power plant simulation that at one time Atari themselves sold. The second is a game called Crush, Crumble and Chomp, where you take on the role of a movie monster. Finally, Microsailing, a yacht racing game written by Glenn Faden and sold as late as 1983 through the Atari Program Exchange.

Neil G. Hyatt II
7717 Buffalo Grove Road
Loves Park, IL 61111

I have been unable to locate any poetry writing programs for the Atari (e.g. Haiku, or equivalent of Apple Poetry Express or the new IBM programs). Do any readers know of any commercial or public domain versions (or the latter translated from the Apple or IBM)?

Don Parsons
Delmar, New York

Newsletters

In the mail this month comes the W.A.C.O. Newsletter from the Woodlands Atari Computer Organization (c/o Gary Houser, 2443 Ripplewood, Conroe, TX 77384, $20/yr), the R.A.A.U.G. Newsletter from the Randolph Area Atari Users' Group (P.O. Box 2611, Universal City, TX 78148, $15/yr), and the newsletter of the Atari Computer Enthusiasts (3662 Vine Maple Drive, Eugene, OR 97405, $14/yr). Incidentally, ACE was the recipient of Antic's "Outstanding Users Group" award, and the group's excellently produced newsletter demonstrates that the award is well-deserved.

BudgetMate

Let's take a quick look at some of the workings of June's BudgetMate before we enter this month's programs. Specifically, we'll learn how BudgetMate's specialized screen displays were created and manipulated.

Two machine language routines help to highlight areas of the screen and to move "windows" of text about. Listing 1 is the assembly listing of the Inverse Line Routine. This routine turns a given number of characters on the screen, at a given screen position, into inverse video characters. It is used to highlight boxes on the BudgetMate screen and effectively serves as an elongated cursor. Machine language was used for this routine to allow the quick, clean movement of the cursor-block from one area of the screen to another.

Listing 2 is the assembly listing of the Screen Window Routine. It allows a small window, or section of a screen, to be temporarily "overlayed" on top of the existing screen. A subsequent call of the window routine replaces the original screen area. The menu feature employs the Screen Window Routine well. When the ESC key is pressed, the menu window is simply placed "on top" of the budget categories. When RETURN is then pressed, the window is removed, and the budget categories reappear.

Additionally, player-missile graphics are used to separate the budget categories and the three data columns. The alternating colors of each line of the display is achieved with a version of the May 1985 Multi-Luminance Graphics 0 program.

Alphabetize Your Diskette Collection

ABCDIR is a reader-submitted program that is used with the Instant Alphabetizer ("Applying The Atari," 2/86) to produce an ordered list of all your programs. Frank Walters, the author of this program, writes:

Your Instant Alphabetizer in the February issue of *Computer Shopper* is exactly what I have been needing for nearly a year. I am running an AMIS bulletin board for a local users' group and maintain a listing of available public domain programs in a "Catalog" file. I list about 300 titles in each volume and sorting has been tedious using a Microsoft BASIC sorter I modified for the purpose. The longest list took over 25 minutes just to sort. The memory available limited the sort to about 400 filenames. I modified my directory reading program to save the data in a file compatible with Instant Alphabetizer and then proceeded to sort it with your program. After a nearly instant

continued on page 193

Listing 2 Continued

```
0100  PLA
0110  PLA
0120  STA $D4
0130  PLA
0140  STA $D3
0150  PLA
0160  PLA
0170  TAX     ; X POSITION
0180  LDA 88
0190  STA $D0
0200  LDA 89
0210  STA $D1
0220  PLA
0230  PLA
0240  TAY     ; Y POSITION
0250  BEQ SKIP
0260 LOOP CLC
0270  LDA $D0
0280  ADC #40
0290  STA $D0
0300  LDA $D1
0310  ADC #0
0320  STA $D1
0330  CLC
0340  LDA $D3
0350  ADC #40
0360  STA $D3
0370  LDA $D4
0380  ADC #0
0390  STA $D4
0400  DEY
0410  BNE LOOP
0420 SKIP CLC
0430  TXA
0440  ADC $D0
0450  STA $D0
0460  LDA $D1
0470  ADC #0
0480  STA $D1
0490  TXA
0500  ADC $D3
0510  STA $D3
0520  LDA $D4
0530  ADC #0
0540  STA $D4
0550  PLA
0560  PLA
0570  TAY ; LENGTH
0580  DEY
0590  STY $D5
0600  PLA
0610  PLA
0620  TAX ; HEIGHT
0630 HLOOP LDY $D5
0640 MORE LDA ($D0),Y
0650  STA $D6
0660  LDA ($D3),Y
0670  STA ($D0),Y
0680  LDA $D6
0690  STA ($D3),Y
0700  DEY
0710  BPL MORE
0720  CLC
0730  LDA $D0
0740  ADC #40
0750  STA $D0
0760  LDA $D1
0770  ADC #0
0780  STA $D1
0790  LDA $D3
0800  ADC #40
0810  STA $D3
0820  LDA $D4
0830  ADC #0
0840  STA $D4
0850  DEX
0860  BNE HLOOP
0870  RTS
0880  .END
```

Listing 3

ABCDIR

```
PHJ 10 REM ABCDIR DISK DIRECTORY LOADER
JSJ 20 REM BY FRANK WALTERS, TYNDALL ATARI COMPUTER ORGANIZATION
RUJ 30 LN=20:DIM FN$(15),FILE$(18),IN$(17),DAT$(LN*64),D$(6)
NDJ 40 MAX=(INT(FRE(0)-500))/LN:C=0:H=0:L=0
JJJ 50 GRAPHICS 0:POKE 709,10:POKE 710,144:POKE 82,0
PWJ 60 PRINT "ABCDIR"
YLJ 70 PRINT "BY FRANK P. WALTERS"
YGJ 80 PRINT "FOR USE WITH 2/86 INSTANT ALPHABETIZER"
NGJ 90 PRINT :PRINT "<1> DISK DRIVE":PRINT "<2> DISK DRIVES"
OYJ 100 PRINT :PRINT CHR$(127);"Which:";
YVJ 110 POKE 764,255:WON=0
UYJ 120 IF PEEK(764)<30 OR PEEK(764)>31 THEN 120
CRJ 130 WON=32-PEEK(764):POKE 764,255:PRINT WON:IF WON=2 THEN WON=0
NIJ 140 PRINT :PRINT "Enter FILENAME for D1:";:INPUT IN$
UMJ 150 IF IN$(2,2)<>":" AND IN$(3,3)<>":" THEN 160
EEJ 160 FN$="D1:":FN$(4)=IN$:POKE 764,255
JOJ 170 PRINT :PRINT "<N>EW FILE","<A>PPEND FILE"
WLJ 180 PRINT :PRINT "Choice:";
DMJ 190 IF PEEK(764)<>35 AND PEEK(764)<>63 THEN 190
GDJ 200 IF PEEK(764)=35 THEN PRINT "New":GOSUB 570:GOTO 250
BNJ 210 TRAP 590:PRINT "Append":CLOSE #1:OPEN #1,4,0,FN$
RYJ 220 GET #1,LN:GET #1,N:GET #1,L
RZJ 230 C=256*H+L:IF C>=MAX THEN PRINT "MAXIMUM FILE LENGTH REACHED":END
BGJ 240 CLOSE #1
SPJ 250 IF WON THEN 280
PDJ 260 PRINT :PRINT "Insert $WRITE$ disk in Drive 1"
HKJ 270 PRINT :PRINT "Insert $READ$ disk in Drive 2":GOTO 290
KYJ 280 PRINT :PRINT "Insert $READ$ disk in Drive 1"
LAJ 290 POKE 764,255:PRINT :PRINT "Press <RETURN> TO END"
JMJ 300 PRINT :PRINT "Disk name or number";:INPUT IN$:PRINT
ORJ 310 IF  NOT LEN(IN$) THEN POKE 82,2:TRAP 40000:END
DBJ 320 IF LEN(IN$)>3 THEN ? "THREE DIGITS MAXIMUM":PRINT :GOTO 290
HFJ 330 IF LEN(IN$)=1 THEN IN$(3)=IN$(1,1):IN$(1,2)="  "
SCJ 340 IF LEN(IN$)=2 THEN D$=IN$:IN$=CHR$(32):IN$(2,3)=D$
FEJ 350 D$="D2:*.*":IF WON THEN D$(2,2)="1"
HVJ 360 CLOSE #1:OPEN #1,6,0,D$
MLJ 370 FOR I=0 TO 63
KWJ 380 INPUT #1;FILE$:IF FILE$(11,13)="SYS" THEN 380
LPJ 390 PRINT FILE$
MXJ 400 IF FILE$(4,4)="+" THEN POP :GOTO 460
PYJ 410 IF FILE$(4,7)=" FRE" OR FILE$(5,8)=" FRE" THEN POP :GOTO 460
PCJ 420 DAT$(LEN(DAT$)+1)=FILE$(3)
OSJ 430 IF LEN(FILE$)=18 THEN 450
ONJ 440 DAT$(LEN(DAT$)+1)=CHR$(32)
WWJ 450 DAT$(LEN(DAT$)+1)=IN$:DAT$(LEN(DAT$)+1)=CHR$(124):C=C+1:NEXT I
FHJ 460 IF  NOT WON THEN 510
PGJ 470 PRINT :PRINT "Insert $WRITE$ disk in Drive 1"
VIJ 480 PRINT :PRINT "Press <RETURN>";:POKE 764,255
NMJ 490 IF PEEK(764)=255 THEN 490
CWJ 500 IF WON THEN PRINT
KXJ 510 CLOSE #1:OPEN #1,9,0,FN$
KMJ 520 H=INT(C/256):L=C-(H*256)
USJ 530 PRINT #1;DAT$;:CLOSE #1:OPEN #1,12,0,FN$:NOTE #1,S,B:B=B+1:POINT
        #1,S,B
VXJ 540 PUT #1,H:PUT #1,L
BKJ 550 CLOSE #1
SPJ 560 DAT$="":GOTO 250
TEJ 570 TRAP 590:CLOSE #1:OPEN #1,8,0,FN$:PUT #1,LN:PUT #1,H:PUT
        #1,L:CLOSE #1
RIJ 580 PRINT :PRINT "File ";FN$;" initialized.":PRINT :POKE
        764,255:RETURN
BJJ 590 CLOSE #1:TRAP 40000
PRJ 600 PRINT :PRINT "ERROR - ";PEEK(195);" AT LINE "
        PEEK(187)*256+PEEK(186)
SDZ 610 POKE 764,255:POKE 82,2:END
```

Listing 4

ATASCII LISTER II

```
LAJ 10 REM ATASCII LISTER II
KFJ 20 REM COPYRIGHT 1985 JEFF BRENNER
BBJ 30 REM ENHANCED BY PAUL SNIDER
MKJ 40 G=0
NVJ 50 OPEN #3,8,0,"P:"
UDJ 60 DIM LM$(100),OK$(1)
KWJ 70 RESTORE 510:FOR I=0 TO 218:READ N:POKE 1536+I,N:NEXT I
RMJ 80 DIM N$(15),DN$(17),TMP$(2048),C$(128),D$(1),E$(1),MS$(30):POKE 766,0
HJJ 90 DN$="D:":OPEN #1,4,0,"E:"
YPJ 100 PRINT "<C>ASSETTE OR <D>ISK";:INPUT E$:IF E$="C" THEN DN$="C":GOTO 120
RSJ 110 PRINT "FILENAME: D:";:INPUT #1;N$:IF N$(1,2)="D:" THEN N$=N$(3,LEN(N$))
CAJ 120 DN$(LEN(DN$)+1)=N$:OPEN #2,4,0,DN$:GOTO 140
NBJ 130 PRINT "ERROR #";PEEK(195):GOTO 110
MIJ 140 TRAP 140:PRINT "DENSITY (1-2): ";:INPUT #1;D:IF D<1 OR D>2 THEN 140
KDJ 150 D$=CHR$(74+D)
IFJ 160 TRAP 160:PRINT "CHARACTERS PER LINE (NORM=38) ";:INPUT #1;CPL
QIJ 170 CL=CPL*8:H1=INT(CL/256):L1=CL-H1*256
GXJ 180 PRINT "WILL THERE BE MORE THAN ONE LISTING?":PRINT "(Y/N)";:INPUT OK$
FNJ 190 IF OK$<>"Y" AND OK$<>"N" THEN 180
RFJ 200 PRINT "LEFT MARGIN: ";:INPUT #1;LM
LYJ 210 FOR I=1 TO LM:LM$(LEN(LM$)+1)=CHR$(32):NEXT I
MNJ 220 TRAP 430:POKE 766,1:INPUT #2;C$:PRINT C$:LN=LEN(C$):C=1
LTJ 230 C$(LEN(C$)+1)=CHR$(155):TMP$(1)=CHR$(0):TMP$(2048)=CHR$(0):TMP$(2)=TMP$
SVJ 240 A=USR(1536,ADR(C$),ADR(TMP$)):I=0:L=1:A=USR(1716,ADR(TMP$))
IGJ 250 TRAP 490:PRINT #3;CHR$(27);CHR$(64);:I=0:L=1
HQJ 260 IF LN<(CPL+1) THEN 350
HAJ 270 LN=LN-CPL
OWJ 280 TRAP 490:PRINT #3;CHR$(27);CHR$(64);LM$;CHR$(27);D$;CHR$(L1);CHR$(H1);
QWJ 290 PRINT #3;TMP$(I*8+1,(I+CPL)*8);CHR$(10);:I=I+CPL
SQJ 300 G=G+1
GHJ 310 IF G=62 THEN GOTO 330
BMJ 320 GOTO 260
OIJ 330 G=0
BWJ 340 PRINT #3;CHR$(10);CHR$(10);CHR$(10);CHR$(10);:GOTO 260
AEJ 350 K=LN*8:H=INT(K/256):L=K-H*256
LBJ 360 TRAP 490:PRINT #3;CHR$(27);CHR$(64);LM$;CHR$(27);D$;CHR$(L);CHR$(H);
QDJ 370 PRINT #3;TMP$(I*8+1,I*8+K+1);CHR$(10);
SYJ 380 G=G+1
SHJ 390 IF G=62 THEN 410
BHJ 400 GOTO 220
OHJ 410 G=0
BRJ 420 PRINT #3;CHR$(10);CHR$(10);CHR$(10);CHR$(10);:GOTO 220
CNJ 430 G=65-G:FOR X=1 TO G
RRJ 440 PRINT #3;CHR$(10);:NEXT X
ZAJ 450 IF OK$="Y" THEN 470
MJJ 460 PRINT #3;CHR$(27);CHR$(64);CHR$(12);
JZJ 470 PRINT "END OF LISTING.":CLOSE #3:IF OK$="Y" THEN RUN
PXJ 480 END
GNJ 490 PRINT "RESET PRINTER - PRESS RETURN":INPUT #1;E$
UZJ 500 GOTO PEEK(186)+256*PEEK(187)
JEJ 510 DATA 104,104,133,205,104,133,204,104,133,207,104,133,206,169,0,168
ASJ 520 DATA 133,203,177,204,170,232,224,156,208,3,76,169,6,10,38,203
UIJ 530 DATA 74,201,96,176,22,201,64,176,9,201,32,176,11,105,64,76
PAJ 540 DATA 59,6,56,233,32,76,59,6,56,233,32,133,208,169,0,133
WFJ 550 DATA 209,24,162,3,24,38,208,38,209,202,208,248,24,173,244,2
CSJ 560 DATA 101,209,133,209,160,7,162,1,177,208,157,171,6,136,232,224
SSJ 570 DATA 9,208,245,169,8,141,170,6,160,0,162,8,177,206,62,171
DAJ 580 DATA 6,42,145,206,202,208,245,165,203,240,6,177,206,73,255,145
DZJ 590 DATA 206,24,165,206,105,1,133,206,165,207,105,0,133,207,206,170
POJ 600 DATA 6,173,170,6,240,3,76,106,6,24,165,204,105,1,133,204
BKJ 610 DATA 165,205,105,0,133,205,76,13,6,96,0,0,0,0,0,0
HAJ 620 DATA 0,0,0,0
JNJ 630 DATA 104,104,133,205,104,133,204,169,154,133,206,230,206,162,8,160
COJ 640 DATA 0,177,204,197,206,208,4,169,151,145,204,200,192,0,208,241
TSZ 650 DATA 230,205,202,208,234,96,155
```

TEXAS INSTRUMENTS

TI Forum

by Ron Albright
& Jonathan Zittrain

One of the cruelist realities of using an "orphaned" machine is the steady decline of commercial software support. Because of the economic realities of software development for a shrinking market, commercial software progressively slows. As the ability of consumers to rely on third-party support dwindles, the residents of the orphanage, then, have a couple of choices: they can sell out and buy a fully supported machine, or they can take up the challenge and start writing their own software. In the TI community, that latter option has become much more viable of late with the availability of a powerful new language for our machine. Namely, "c99" from Clint Pulley (Fairware; send two disks, return mailer and a suggested contribution of $20 to Clint Pulley, 38 Townsend Avenue, Burlington, Ontario, Canada L7T 1Y6).

A variant of "small c" developed by Ron Cain in the early 1980s, "c99" is the first compiled language for the TI. What does that mean? By writing programs using c99 syntax and running the source through the c99 compiler, the output code is assembly source code. The resultant code can then be assembled using the Editor/Assembler package from TI into runnable object code which is many fold faster at run-time and more efficient than BASIC or other non-compiled languages. Further, C syntax is relatively easy to learn as a second language and, at least for me, was quite similar to programming concepts I had previously developed in Basic and Extended Basic. I could never learn assembly programming and Forth was difficult to grasp with its stack and RPN. I have found C syntax a relatively easy transition "step-up" for me as a programmer. With the release of version 2.0 of the c99 compiler by Pulley and the additional libraries from others that allow for speech, sound, and floating point, c99 has achieved an increasingly popular spot for programming on the TI. An added benefit of learning c99 is that it is a subset of full C. Code you write in c99 syntax can easily be ported to other machines. Since C is available for virtually every machine on the market today (the op system for the Amiga was written in C), learning c99 now will stand you in good stead in the future should you ever decide to change machines. You will have learned a language that you can use long into the future of your computing needs.

What do you get? The c99 system disk contains several files. There is an adequate manual provided by the author that covers the basics of how to run the compiler, the limitations of c99 (useful as you start to type in programs from books about full C) and several example programs with source code to examine. The manual will not teach you the C programming language. You will need to buy a book for that (I recommend "C Primer Plus" by Waite, et al; Sams Publishing Co., 1984; $21.95). Let's look briefly at the mechanics of how the system works.

I will make a few assumptions to start. First, I will assume you have a single-drive system with only single-sided capability. Second, I will assume that you have a basic understanding of the Editor/Assembler package, i.e. you know how to use the Editor, and run programs out of either option 3 or option 5. I will, further, assume, that you have assembled at least one source code file with E/A. If these assumptions are incorrect, let me know and we'll touch on the Editor/Assembler more next time. Let's get started.

Take a clean disk and copy the following c99 files onto it:

CSUP D/F 80	12 Sectors
PRINTF D/F 80	14 Sectors
UTIL1 PROGRAM	33 Sectors
UTIL2 PROGRAM	33 Sectors
UTIL3 PROGRAM	29 Sectors

Next, from the Editor/Assembler disk, copy these files to the same disk:

ASSM1 PROGRAM	33 Sectors
ASSM2 PROGRAM	20 Sectors
EDIT1 PROGRAM	25 Sectors

If my addition is correct, that gives us 199 sectors on our work disk. Now we are ready to proceed. Keep our work disk in the drive and insert the Editor/Assembler cartridge. From the menu, load the Editor and go into the Edit mode.

Type in this program.

```
/* c99 The smallest c99 program */
main () /* a moment */
{
  /* we aren't going to do anything! */
}
```

Congratulations! You have just entered your first, valid c99 program. Let's look at it. The first line is nothing more than a "REM" statement. Instead of REM, c99 recognizes anything enclosed within "/* */" as a comment and ignores it when compiling. You can put anything between these comment delimiters, and it will survive compiling without error. Use them frequently as you program. As we mentioned, c99 programs are difficult to read at best and REM statements are useful to remind yourself, as well as other reading the program, what you had in mind. As shown on the next program line, they can also be used on the same line as compilable code, so comment each step of your code for clarity. A routine called "main" is required somewhere in each and every c99 program. Typically, it is the first block of code, sets things up, and calls the other then a series of "GOSUB"s (really, a series of "CALL SUB routines). Each function call doing its task and returning control back to the main, or controlling program. The good c99 program will break large programs into smaller ones and write a function for each. If a function can stand alone (has nothing in it unique to a single program) the programmer eventually develops a "toolbox" of useful small routines (functions) that can be combined in different ways to solve problems. That is just one of the beauties of c99.

So, let's compile this program. After typing it in, hit FCTN 9 twice, get the EDITOR menu and elect to save it to disk. Your main work disk should have plenty of room, so no disk swapping is required. After saving to disk 1, hit FCTN 9 again, and get the main E/A menu. Choose Option 5 to "RUN PROGRAM FILE". The three compiler files, which I have renamed UTIL1, UTIL2, UTIL3, run out of option 5, not option 3 (which runs D/F80 files). When you are prompted for "Program Name:", since you have changed the name of your compiler files to UTIL1-3, you only have to hit enter. The default name for E/A 5 is UTIL1 and those files will then be loaded automatically (now you see why I renamed them). You will then be promoted by the c99 compiler (prompts will vary depending on which version of c99 you use) for a input file name. Type "DSK1.filename" (filename being generic for whatever you called the file you typed in and saved to disk). You will then be prompted for an output file name. Call it "filename/C", just to remind yourself that it is a compiled file. Then, hit enter and you are off and running. The compiler will flash each function name on the screen as it is compiled to show you where you are in the program. You

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A Layman's Guide to Understanding Artificial Intelligence (AI) Part III

by Dick Evans

Computers have been a part of education for some 25 years now. Intelligent computers are relatively new. The size and cost of AI computers has kept them out of the mainstream. With the advances we have seen in technology over the past few years, the power of yesteryear's very large mainframe is now available in a file cabinet sized super mini. Even the current micros are becoming quite powerful.

Intelligent computer-assisted instruction (ICAI) is just another of the evolutionary steps being taken. When the computer first came to education, it was a research tool. It soon became the teacher's assistant. Now, it can replace an instructor. Algorithmic computer based instructional material was only as good as the program. It amounted to little more than an electronic page turner for a programmed text.

The heuristic reasoning ability of the AI based computer assistant provides greater flexibility. The increases in speed and capacity allow the system to hold more information. All of this is at little discernable reduction in presentation speed, which now include the addition of colors, higher resolution, sound and animation. One of the tools that is available now is a program development package that allows the non-computer expert to produce a very sophisticated instructional program.

At your fingertips, the best instructor in any subject you care to study. Think of the advances you can make. Think beyond that, to the advances that the expert can make now that some of the instructional burden has been lifted. We have returned to knowledge engineers and domain experts. We are looking at the ability of two people to expand their potential.

Like the expert system's three parts, knowledge base, inference engine and user interface, the ICAI system has three parts. The problem-solving expertise is this system's inference engine. The knowledge base consists of two parts, the student model and the tutoring module. The user interface is still the user interface. Through interaction, the ICAI system can determine the student's level of understanding or misunderstanding. It then starts its teaching from that point.

This same technique is being applied to the development of software. Some of the reasons for this are the need for more and better programs in less time and the limitations of the human programmers. Using AI techniques, the programmer is provided with the tools to work better. AI software development tools provide expert assistance in the design and organization of software. Code generation programs actually produce high level language source code in

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Dallas 1986 Achieving Your Potential TI-MIX International Computer Symposium

by Dick Evans

This show was not for the user. TI's VARs were well catered to and the end users were ignored almost totally; the exceptions will be covered a little later on. All of the exhibitors and the majority of the session speakers addressed the needs of the VAR. You may conclude that this is a continuation of the trend indicated by the advertising TI has done to recruit VARs.

The announcement of the new 32-bit 1,500 machine was very well done, no surprise, just a very well done formal show. One of the points stressed was its IBM compatibility. One of the points not mentioned is the steady withdrawal of TI from all products not IBM compatible. This coincides with TI's withdrawal from end user support.

These impressions were reinforced by the following observations:

- There were no new products, soft or hard, introduced for the TIPC.
- MS-DOS, ver. 2.13 has been termed a "mature" product for which no enhancement are planned.
- TI announced that it will no longer re-package Microsoft products. It will assume the role of reseller and the product will ship in the Microsoft package.
- Many user questions were answered with the question "Have you talked to your VAR about this?"

It was also interesting to note that there were no Pro-Lites being used. displayed or mentioned at any time during the entire show. When asked specifically about providing IBM compatibility for the TIPC, TI said that it has not found a suitable means for doing this. They also said that they had no plans to continue looking. If such a product is to be marketed, it must come from a third party developer.

The TI Professional Computer

By now you may have guessed that the TIPC is an "undeclared orphan." You have guessed correctly! Perhaps its passing will be quieter than the bombshell that burst when the 99/4A was orphaned. Both the TI Pro and the Portable Pro have joined the ranks of the unsupported. There will be the usual inventory of repair parts available for the usual period of time. There may be a few new software releases from the larger developers in the near future; however there are no long term plans, known to me, for hardware or software support of the TIPC/TIPPC by its parent or any of the large developers. The Pro is "dead." But — long live the Pro! The previously mentioned absence of the Pro-Lite should be an adequate comment on its future too.

Is There Any End User Support?

Has overall supervisory responsibility for the organization and must balance its efforts between the end users of TIPCs and Business Systems while still addressing the needs of systems managers. Mr. Robert Teague is the Chairman.

The End Users' Council

An arm of the Board of Directors dedicated to the support of end users, especially the TIPC. This group is currently at work producing an "End Users' Manual" for the TIPC which should be distributed in the near future. They are also working on plans to expand their user support through an interface with the TI Information Network and a local BBS dedicated to the TIPC. Mr. Quentin Dolecek is the Chairman.

The Board Of Governors

This is a new group, yet to be formed, made up of the Chairpersons of the local RIXs. They will also be an arm of the Board of Directors and serve as a liaison between the General Board and the user. One side effect of this reorganization will be to effectively move the RIX from a semi-independent operating unit to a chapter of the TI-MIX organization. This should provide closer cooperation, better communications and improved support for the RIX and its user members. It has no Chairperson at this time.

Directions Magazine:

This is the monthly magazine of TI-MIX and its hardcopy means of communications. Financially supported by its advertisers and editorially staffed by a few very dedicated individuals, it does an always improving and impressive job of informing its readership. Guided by the policies of the Board of Directors, Miss Lark Doley, Publisher and Mrs. Rosemary Colgrove, Editor, mail about 20,000 copies each month.

The contents are supplied by a small, but growing, group of "volunteers' who receive only the satisfaction of knowing that they are helping the users as compensation. With the orphaning of the TIPC and the introduction of the Business System 1500, you can expect to see an increase in the articles and helps for both systems.

TI Professional Computing Magazine

Under the editorship of Mr. Harold Sims, this publication provided a wealth of information and support for the TIPC users. Harold is no longer with PCI, owner of the magazine, so we will have to wait and see who the new editor is and what is provided.

The TI Information Network

One of the SIGs on the DELPHI information distribution system, it is dedicated to supporting all TI computer products from the 99/4A through the Business Minis. Expanded end user support is now being provided in the form of Teledata, Inc.'s presence as a vendor and resource for the 99ers. TELEDATA will be assisting RANDYH. An electronic RIX, known as RIX on-line, is being formed to provide the more isolated TIPC and Business System users with a mutual support group as well as a way to become a participating unit in the TI-MIX organization.

Through its interface with both Tymnet and Uninet, DELPHI and the TIIN can be accessed from over 500 U.S. cities locally and over 65 foreign countries. This provides users and groups with almost worldwide telecommunications capability.

During the Dallas Symposium, TI-MIX/Directions, *TI Professional Computing Magazine* and TIs Artificial Intelligence (AI) Group expressed interest in participation. ELLISCO, the TIIN Manager, will keep you informed, online, of the latest developments

TIPC Network

This is an independent organization recommended by the End User Council Chairman as a source of hardware components for your TIPC. They are very small and sometimes appear to be unresponsive. Hopefully, maturity will solve this current situation. I have also been told that they will soon be offering software for TIPCs.

Computer Shopper

Not TI specific but very TI supportive, Mr. Stan Veit, Editor, is providing me with the opportunity to reach users and groups with another information and assistance resource. As an owner/user of a TIPC, I am biased toward my machine. I am also practical enough to know that you are

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New Programs! For The TI-99/4A

EZ-Loader II

New, improved! More powerful, more convienent, more flexible! Shows up to 127 filenames! Load & run a program from any drive, with only 1 keystroke! Load & run BASIC, Ex. BASIC, or Assembly Language program! Does not wipe out a resident Assembly Language program! Delete a file from any drive, with only 2 keystrokes!

Automatically shows you a menu of all the files on a disk. Load & run any program, simply by pressing 1 key. Delete any filename, with just 2 keystrokes. Save time, eliminate typing mistakes. Perfect for children. Unprotected, so you can put it on all your disks. $19.95.

Data Base 99 Sampler

All the features of the regular Data Base 99, only limited to 5 records, so you can try it out and see how easy it is and how useful it is. Includes a $5 rebate on purchase of regular Data Base 99. $4.95.

Chart Maker II

New, stand-alone version! (does NOT req. Draw 'N Plot) "A picture is worth a thousand words." Turn ordinary numbers into impressive bar graphs and pie charts, quickly and easily. Menu driven. Output to screen or printer, normal or full page size. Great for presentations at work, school, or home. Req: Epson or Prowriter compatible printer. $19.95.

For more information contact: Quality 99 SoftwareWARE, 1884 Columbia Rd. #1021, Washington DC 20009, (202) 667-3574.

Mention that you read about it in *Computer Shopper*. ●

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should see only "main" if you are compiling the first program, and "main", then "doit" if you are compiling the second routine. If an error is encountered, you will be told. But we'll assume you typed these short routines in without error for now. It shouldn't take long and you are told to press enter to continue after the compiler is finished.

Now what? If you catalog your disk now, you should see the initial source code file you typed in and saved, and now a second file called "filename/C". Both should be D/V80. You have one more step to do before you can run the program. What the compiler produced was assembly language source code. Like all source code, it has to be assembled. Get to the main E/A menu and choose Option 2, Assemble. When asked to "Load Assembler?", hit "Y", and since we put the E/A assembler files on disk 1 (ASSM1 and ASSM2) they should load right in without swapping disks. You are then prompted for the "Source File Name". Type in "DSK1.filename/C" (NOT the program you typed in and saved, but the compiler's output filename). For an "Output File Name", I use "DSK1.filename/O" to let me know this is object code. Then hit enter for each of the next two assembler prompts ("List File Name" and "Options"). The assembler should start right up and finish with the assembly process. Now, catalog your disk again. You should see a third file added now — "filename/O". This time, it is not D/V80, but D/F80. Assembly language OBJECT code. You have produced an assembly language program. How do you run this "do nothing" program you have written? Go back to the main E/A menu again. Choose Option 3 from the menu. When asked for "File Name", type in "DSK1.filename/O"

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SANYO

The Silver Box

by Richard Fujita

Red Flash Warning

We found the possible origin of a severe transient inside the Sanyo MBC-555 computer! When it takes place, the transients could be powerful and strong enough to knock out any power supplies. This involves the power supply, printer, video monitor and any other peripherals you might plug into the power outlet located on the back of the computer.

The computer is fused with a quick-blow, 1.5A fuse. This is normal for a 50W computer, since you should use a fuse three times the rated current draw, as a rule of thumb. What is not normal, is that this computer itself draws so little power and the capacity of the fuse is not even 3 amperes (nor more common 6 amperes) and yet it has auxiliary AC outlet on the back into which people are known to plug several peripherals in. In an IBM PC a separate fuse is found in the path of the auxiliary outlet on the back of the computer, but, this is not so in the Sanyo.

A heavy duty printer can draw up to 150 watts of power or more when it is operating. It would have a power supply powerful enough to supply this much power and naturally the rush current when the printer is switched on would be between 6 amperes and 15 amperes peak, depending on the design of the power supply. This much peak current may or may not blow the 1.5A fuse, but, if you add the rush current of the computer supply and any other peripherals, such as power hungry color monitors, the 1.5A fuse probably will burn out when you flick the switch.

There is one more story you should know about in this situation, that is, the power transformers used in the printers) and the video monitor help produce powerful transients. The power supply capacitor accumulates the electrical charge and thus electrical energy. That is what it is supposed to do. The inductor, just another name for a power transformer, accumulates electrical current and thus energy. When a large current is interrupted a big arc can be generated. There is a direct relation between the size of the transformer and the energy of the transient thus generated.

When an AC switch is operated, it cuts off a normal current. A normal Alternative Current (AC) goes from either negative peak value to a positive peak value and positive peak value to a negative peak value or vise versa 60 times a second, the power line frequency. The switch cuts off the varying but none-the-less steady state current. The arc (you might call it spark) generated by the switch varies every time you operate the switch.

The fuse is a special switch. The fuse is a maximum arcing switch! It cuts off at the peak current condition. It generates the greatest possible transients that the circuit (power supplies, power transformers and line capacitors) is capable of generating. This is the reason blowing a small fuse can have a tremendous punch, as one of our readers experienced this twice. I am assuming from his story that; the first time it happened the power transistor in the original power supply went and thus the Main Board was burned out, the second time it happened his new switching power supply burned out.

If you did not replace the fuse in your computer with a slow-blow type and if you still have your printer(s) plugged in at the back, the above condition is lurking around your computer, and a disaster can strike your computer today or several years from now.

Sometimes even a slow-blow fuse cannot save your computer if it blows, and if you did not install a suitable varistor. There is a few things you can do, (but at your own risk).

1. If you wish to plug in your printer to the computer for one switch operation, install a new, large size (6A to 15A) line filter for the outlet, then add two varistors, one at input of the line filter and the other at the output of the line filter. Put a suitable slow-blow fuse depending on the current capability of the new filter. The existing line filter is just too small to feed all the power you might need for all of your peripherals. Add a pig-tail 1.5A fuse for the power supply. Cover the pig-tail fuse with an insulating tubing.

2. Use a power strip with a circuit breaker, a suitable noise filter and a transient protecting varistor, and plug everything into the outlets of this power strip.

3. Replace the 1.5A quick-blow fuse with a 3A slow-blow fuse, install one or two varistors and pray.

If you select choice number one, your computer is no longer UL listed in a legal sense, but this is the way the computer should have been wired. Choice number two is the best and easiest solution for anybody with about $30.00 and the most desirable and definitely easier to implement than choice number one, and this is 100% legal.

The choice number three is easy and takes minimum of expenditures but you are not following the UL recommendations and this should only be considered as a temporary measure, unless you fuse the power supply separately with an additional 1.5A quick-blow or 1.0A slow-blow fuse or use a power supply with an internal fuse.

Here is a word or caution for anybody using a power strip. This is one way to create an undesirable ground loop. A ground loop may act like a giant loop antenna picking up any electromagnetic energy passing the vicinity; the radio waves from the radio and TV stations, or from your neighbors' CB equipment, the switching transients from refrigerators, washing machines and even lightning with a tremendous punch. All are capable of generating from a few milli-volts to a few volts of noise potential at the connecting point of the data cables, except the lightning which can generate up to a few thousand volts in the loop if it is close enough.

A ground loop may interfere with proper operation of your printer, or modem, or anything else connected to your computer with a data cable, intermittently and unpredictably. To avoid this effect, you have to bundle all the power cords plugged into this strip as close as possible to the computer. The aim is to reduce the antenna effect of the number of power cords connected to the power strip. The power strip cord itself should be stretched away and separated from other power cords coming from the peripherals you are using.

The Sanyo Expansion Evaluation Results

After many weeks of trying there are still some areas that need to be explored. This involves the use of the V20 chip in the Sanyo. I have ordered some quantities of the chip to try and compare them. One other category is memory expansion by piggy-backing RAMs, the method favored by Richard Stone of Northeast Instruments. He told me that he has stacked 960K of memory by this method. This is one of the fields we have to explore at a later time. I am hoping he will tell us exactly what is involved and what service he can do for the readers of this column.

Of the two memory expansion boards, each has its own merit. The Missing Link board and the VB550 color board combination is what I recommend for the people with soldering irons because if you don't use the color board it will slow you down in display speed. Besides, without the color board you cannot run Lotus 1-2-3 and many other IBM programs.

My friends told me that desoldering the expansion connector on the VB550 is not a big job as I had described before. Now I should admit I was partially wrong assuming the solder-tabs of the connector are the same as on the American connectors. Instead, the socket has thin, slender tabs now seen in American makes and this fact makes the desoldering job much easier, but I still cannot recommend this for anybody who has not handled a desoldering job before. If you have never attempted this before and are willing to try it, I recommend to break the black plastic casing carefully and pick each pin out with pliers and a soldering iron. Many people told me to use the Radio Shack desoldering iron which happened to be in my collection of desoldering apparatus since 1982 when it first appeared on the peg board of the store. With it the job should be easy for the experienced.

The result of using the Missing Link board and the VB550 should be very satisfactory. If you add the Speed Board with V20-8 to this set-up, the speed is also doubled. With 736K (753,664 actual) of RAM you can run 396K RAM DISK like I do. (I'm using a modified version of the IBM VDISK program which appeared in the IBM DOS 2.11 Technical Reference manual because of the small size of the overhead.)

The Sanyo VB512

The jury is finally in on this board! If you do not have the VB550 and revere the job of desoldering and soldering to a level of difficulty equal to designing and building a space craft launcher, this is the board you should get, but, you should know the possibility and value of this board as well as its limitations without modification.

The Sanyo VB512 can give you an easy memory expansion to the total of 512K RAM on a single row of the 256K RAMs without modification, and with modification it can give you 736K maximum RAM with two rows of HM502560-15. Use of Hitachi 256K chips is recommended because of the reflesh mode used on this board.

If you just install two rows of the 256K RAMs, the RAMs become unusable. They interfere with each other and anything beyond 40000H and above in memory becomes unpredictable. If your loader manages to put the operating system in that area of RAM, the computer will crash.

With the modification scheme presented by Jack Farrow, the difficulty can be solved for good. With the modification, you can run Sidekick and print spool programs on top of 396K RAM DISK. If you are a serious user of word processing software or program editor and compiler programs, the use of RAM DISK will speed up the work to an almost waitless operation.

I use Newword for writing assembler programs. Jumping between this WP program and the Assembler and then the Linker can be almost instantaneous. Assembling and linking speed is many times faster

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The Silver Box
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if you put all these programs in the RAM DISK and the use of above boards is one easy way to achieve this.

There is one important question when using expanded memory. The stock Sanyo BIOS stops to load when it detects a RAM area beyond 3FFFFH. The Sanyo software, the new Sanyo BIOS you get with the VB512, will locate the operating system and a portion of the COMMAND.COM, at the top of the available memory, within the 640K byte memory boundary. If you have even more memory than this, the DOS will not utilize it.

This problem is solved by use of the Missing Link patch. The patching program contained in the disk accompanying the Missing Link board uses DEBUG to load the Sanyo BIOS and modify it to set the top memory limit at location B7FFFH if you are using the Sanyo Color Board. The patch seems not to create any bugs and has been working beautifully in my Silver Box for the last two months.

The Farrow-Mod For VB512

The Farrow-Mod worked well from the instant I finished it, however, I had other problems with the combination of my old Main Board and the Speed Board. Now, most of the problems are solved and I have more than 700K of usable memory. I added one more wire to this mod to change the address decoding scheme slightly and stuffed the board with two rows of 256K RAMs. These cover RAM areas from 40000H to B7FFFH. The VB512 has its own video RAMs starting at address B8000H and as long as you use the Color Board you cannot use this area as general-use RAM area.

This limits the general purpose RAM at address B7FFFH (same as segment address B000H: offset address 7FFFH), the total of 736K (753,664 actual bytes). Now I am enjoying the use of a 396K RAM DISK with instant program loading. It has more than 250K of RAM for the programs to run in. By the way, I loath the engineer who started to show the actual byte count on the screen instead of the KILOBYTE count.

If you look at any computer dictionary it tells you that 1 kilobyte is 1,024 bytes, yet some Microsoft programs show actual byte counts only and in some Sanyo programs the actual byte count is abbreviated with "K." This is wrong and promoting general confusion of kilobytes and actual byte counts, especially when "thousands" is abbreviated with the use of "K."

As I said before, the mod takes one 74LS74 IC and 14 wires and two trace cuts to achieve installation of two rows of HM50256P-15 256K RAMs made by Hitachi. The details of this mod and some photos are being prepared to appear in this column. I would like to add that the Michigan Software is providing this modification service for twenty dollars. I suppose the cost is worthwhile for many users, except for the few who wish to do everything by themselves.

The Color Monitor For Sanyo

I acquired a new monitor this month, a marvel of a cheap monitor. Probably the most suitable color monitor for the Sanyo 550/555 with a screen switch on the front panel. Inside, I found about 100 or so transistors and ICs mounted on the three circuit boards and hundreds of resistors underneath the boards. It had a June 1984 manufacturer date stamp on the back. The spec did not say anything about the dot pitch, the measure of the color tube resolution, however, a brochure I have seen indicated something like "580 x 240, 2,000 characters." The CRT produces a reasonable good image quality comparable to my friend's IBM color monitor and the CRT size is very honest; being viewable 14 inches from corner to corner, while my 13 inch SONY has only 12 actual inches.

I bought it for three reasons:

1. You can switch the screen between the IBM screen and the Sanyo screen by the switch on the front panel of the monitor, a big boon to the Sanyo users!
2. It has reasonably good image.
3. Low cost.

I paid $229.00 at a local discount department store in the Video Department. It is significant that it was not sold in their Computer Department. This monitor was not made by Sanyo. The model number is Panasonic CTF-1495M.

My guess is, it might not have sold well as a computer monitor because not many people knew how to use this model without the optional, special cable. An optional cable is a nuisance for the stores and the manufacturers alike. You just don't know how many cables you can sell and the price is so small that it is not worthwhile to stock unless you expect to sell 10 to 20 times the count of the monitors sold, which simply will never happen.

For these type of items, stores usually gets less margin than selling monitors, even though the cables may be priced at 10 times the manufacturing cost. As I explained, an optional cable is a very difficult item to distribute. In my opinion, all the cables must have been packed inside the box if the manufacturer is serious about selling the monitor. This action may cost the manufacturer five dollars more, but the return will be worthwhile. Anyway, somebody in Panasonic made the decision not to include a cable.

The monitor has three switch selectable modes; "RGB" for the Apple and IBM computers, "TEXT" for the now-defunct VIDEOTEX use (which is ready to receive the Sanyo screen RGB signals if you just know how), lastly "VIDEO" which accepts the composite color signal such as from a VCR. The store was selling this item as a VCR monitor because nobody in the store could connect this one to the computer, and, as usual, the store did not have the schematic for this model. (In Japan where the Panasonic Headquarters are located, you get the circuit schematic when you buy anything. Here in the U.S. you never get the circuit schematic in the box!)

The Instruction book did not have much information except a simple spec which did not include such vital information as the CRT resolution nor dot pitch spec, but with several connection diagrams and an explanation of front controls. There is no detailed information how to use it with the IBM or Apple. The only thing they tell you is that you have to buy a specific type cable, which was not available from the store. Under normal circumstances, no cable means no computer connections.

With little experiment it ran with the Sanyo screen signals. I connected RGB signals from the DIN connector on the back of the computer to the "TEXT" R, G and B inputs of the monitor. One important point of a successful connection is that you must connect the "MONOCHROME" output to the "VIDEO/SYNC" input of the "TEXT" inputs. The latter supplies the necessary sync signals to the monitor. When you finish the above connections, you can select the Sanyo screen by simply pushing the "Text" button on the front.

The VB-RGB Connection

When I first connected the RGB inputs of the monitor to RGB outputs of the VB512, nothing appeared on the screen. The inputs were somehow disabled. I spent one whole Sunday tracing the circuits to find out which lines are switched by the "RGB" switch on the front.

The secret of enabling the inputs was not there. The switch was properly controlling the gates. The secret was in the "HRS" 20 PIN AUDIO connector. The RGB inputs were enabled by the pin 6, marked as "IBM/PC 12V" in the pin connection diagram. If you connect this pin to + 12V, ALL the RGB inputs are enabled. The next pin, pin 7 carries + 12V. If you connect pin 6 to pin 7, this is done. This 20 pin connector is the same type used by SONY for their RGB color monitors, a defacto Japanese standard for RGB. I would expect that the same cable from SONY would work on this monitor.

If you don't mind making your own cables, this could be the best monitor for the Sanyo. The only problem on my monitor is in the top character line which lacks good convergence. I can see a little red showing on the upper side of image at the upper right corner. Otherwise, I am delighted with this monitor.

The Weight Problem

A word of caution is necessary if you are planning to use a big monitor on top of the Sanyo computer as I do. As I write this report, I pull the circuit boards in and out of the computer, sometimes, ten to twelve times a day.

Yesterday, my Silver Box developed an intermittent and the operation became unpredictable. During the period of one of the difficulties I was experiencing, I took a reading on the logic power voltage. It was 0.2 volts! Exactly 4.6 volts lower than I expected! My Intel 8088 likes to run at 4.8 volts rather than 5.0 volts. It gives me erratic starts when it's cold and if the power supply voltage is 4.9 volts or more.

After very extensive sleuthing, I reasoned that something is shorting the board. I pulled the Main Board and hammered it with my palm of hand in an upside down position to shake off any particles if any. First it worked, and then it did not work. After another 15 minutes of peeping and looking, I declared to myself, "Its got to be the protruding screws on the bottom of the chassis!" There are two screws raising their heads on the bottom. Both are used to secure the rubber feet. I removed the rubber Feet, put a good heap of silicone rubber glue and screwed them back on, but not all the way. This solved the mysterious intermittent. The chassis was bent around the rubber feet due to the 32 pounds plus weight of the monitor! The screws were touching the component pins extending from the bottom surface of the circuit board.

I looked around and found four metal blocks about 2½ inches long and 1-7/8 inches high. These were old audio transformers used in the two aircraft receivers I had. These transformers were placed just outside of the rubber feet under the computer. If you wish to use wood blocks rather than transformers, you can do so. The transformers are carrying weight but not audio signals anyway. The rubber feet now no longer carry the weight.

Since I provided a firm support for my Silver Box I am considering putting my monochrome monitor on top of the Panasonic color monitor. I need an additional monitor to use when I do a review of the "Second Screen Driver" software sent for evaluation by Albert Pasquale, in, perhaps, next two to three weeks, although my new monitor can now show both screens. The total dead weight could be 50 pounds or more. The only prob-lem with this idea is how to stabilize the whole tower of computer based monitors!

A Little Disaster

Last week, after the Main Board went in and out of the chassis more than one hundred times it went down during the exhaustive evaluation process in combination with the Speed Board, Missing Link board, and the Sanyo boards VB550 and VB512. In the morning, the computer was working perfectly, as usual for the last three weeks, with 396K (405,504 actual bytes) RAM DISK running on 736K (753,664 actual byte count) available RAM on VB512. Then after a few tries with several board combinations, the Main Board stopped functioning. I found two traces which had bad through-hole joints and were causing intermittent operations every so often while the board was pulled back, but even these were just incidental.

After reset or cold start, the CPU comes to read the status of the Disk Controller, but it loops there and remains there. All the signals on the data and address lines appear to be normal. The disk Controller is responding fine with status 00, but the CPU may be looking for something else.

If Sanyo MBC-550/555 had a built-in monitor program, diagnostics would be very easy. To make a computer to read and work with a monitor program stored on a ROM is relatively easy. The MSDOS requires many disk reads just to start it, besides other things such as initializing peripheral ICs. If you have a ROM-BASED monitor, like most

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TANDY COMPUTERS

CoCo Column

by Michael Wafkowski

Low Budget Office

I've discovered the CoCo and the Tandy Model 100 to make perfect companions in providing me with a low budget portable office.

I strongly recommend that those of you who recently picked up 8K Model 100s for the closeout price of $149 look here in the *Shopper* for cheap 8K memory modules (about $25 each) and upgrade the machine to 24 or 32K.

The CoCo and Tandy portable together are an unbeatable team for the money. It's quite simple to use the Model 100 in the field and then come home and upload text to the CoCo and have easy disk access to the files and a CoCo word processor like Telewriter-64 or VIP writer. All you need are a null modem cable (about $8 to build) and communications software for the CoCo, which you probably already have.

The Model 100 I use for writing, (things like this column when I'm on the road or feel too lazy to sit upright at my desk), and taking notes at school. As you Model 100 owners have found out, the editing and print formatting features in the Model 100 are minimal. However, when the files are transferred into your favorite CoCo word processor you will have total control over editing and formatting.

There is a new Tandy portable Model 100 disk drive for $199, but that only solves the problem of storage. The CoCo/100 solution is more functional and a lot cheaper. There have been some reports of unreliability with the new 3½ inch drive and $200 is still a lot of money for 100K of storage.

For those of you who use the CoCo with OS-9, there are files on the OS-9 SIG on Compuserve that will allow you to use the 100 as a remote terminal with the CoCo as host... more of that in a later column.

The construction of a null modem cable is quite simple. You need only the slightest familiarity with a soldering iron. The parts you need are:

1) One 5-pin DIN connector (male)

2) One 25-pin DB-25 connector (male)

3) Some wire with at least three conductors

The wiring goes like this—

MODEL 100 DB25 Pin #	Function	COCO 4 PIN DIN Pin #
2	data from 100 to CoCo	2
3	data from CoCo to 100	4
7	Ground	3

To get the two machines to talk to each other you must set the STAT parameters on the Model 100 to: 57E2E

5 = 1200 baud
7 = 7 bit word
E = Even parity
2 = 2 stop bits
E = Enable X-On/X-Off

Set the CoCo terminal parameters as follows:

PARITY = EVEN
DUPLEX = HALF
STOP BITS = 2
BAUD = 1200

Enter the CoCo Terminal mode and hit F4 on the 100 to get into terminal mode. Now your computers should be in communication.

To send a file from the 100 to the CoCo, first open the CoCo buffer then return to the terminal mode. Now on the 100 select F3 to upload and type in the file name. Of course, the file must already be in the 100 with an extension of .DO. Type in the desired line length (up to the maximum of 132) and hit enter. Your file should now be appearing on your CoCo screen.

To send a file from your CoCo to the 100, load your file into the CoCo buffer; then on the 100 select F2 to initiate download. Type in the file name then hit enter. Initiate upload on the CoCo and watch the file load into the 100.

A 32K Model 100 will give you about 15 pages of text. I usually only have to transfer text files to the CoCo once a week.

Reflection—

In thinking about the new CoCo which won't appear this Spring, I began to ponder on the ultimate CoCo as things are now. A current ultimate CoCo would be configured as such:

1) Contain a 256K RAM board

2) Have two D/S drives

3) Contain a video driver hooked to a color or monochrome monitor

4) Be fitted with a third party keyboard like the HJL-57

5) Be hooked up to a Multi-Pak

6) Have an RS-232 Pak, speech pak, and an 80 column card plugged into the Multi-Pak

7) Have a 1200 baud modem

8) Use the new four ROM controller by Disto

9) Be hooked up to a serial/parallel printer box attached to one of the new low cost NLQ printers.

Such a configuration will give you a machine that is very powerful and about all you're going to need to do any kind of applications work you can imagine, whether at home or in a small to medium size business.

The problem comes when you add up the price of all the hardware additions to bring the CoCo "up to snuff." Even at current lower prices such a system will cost you over $1,000 at a time when the Atari 520ST is going (street price) for $649 with 512K, 360K drive, monochrome monitor and a mouse.

On the positive side of the coin however, is the fact that you can start out with the 64K CoCo and a cassette player (as many of us did) for $250 and upgrade at your own pace. This is a wonderful way to learn about the CoCo specifically and computers in general while building a powerful system.

This all leads me to the point at hand. It would be a real shame if Tandy left CoCo users without any further upgrade path since the installed base of CoCo users has become a large one. It was third party companies who developed the enhancements listed above and the software to run on the enhanced machines. That's what built the CoCo base and

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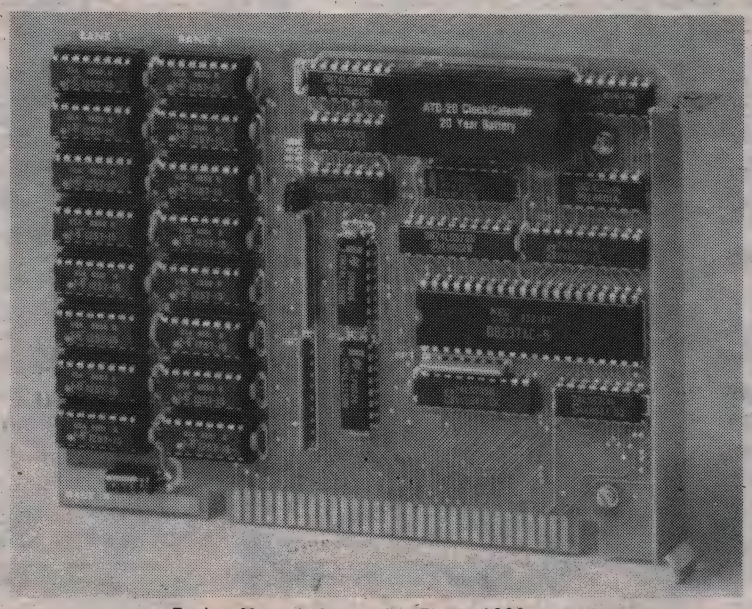
The Zuckerboard

by Lon Andrews

Advanced Transducer Devices, Inc. has marketed "Dr. Zucker's" expansion boards for the Tandy 1000. Yes, Dr. Dr. Dr. Zucker. I didn't stutter. I saw the ad several times before I became interested. Mostly the prices attracted my attention. $149 with 512 or $109 with 256K. I don't know about you but that is a lot less expensive than anything I have found yet. $39 adds the clock/calendar. The board includes the DMA controller and is under warranty for two years. Beats 90 days six ways from Sunday.

I waited with baited breath to see this board. So often the old adage of price vs. quality raises its head when something looks too good to be true. When the board arrived I went over it with my handy dandy bench magnifier (cause my eyes don't see too well without it). Didn't look at all bad.



Zucker Memory Board For Tandy 1000.

As a matter of fact, it looks darn sharp! Only one jumper to select the amount of memory being used and no other changes to be made. There is no replaceable battery for the clock. It is stamped as a "20 Year Battery." If it has to be replaced after "20 years" you have invested about $2 a year and by then the Tandy 1000 will be in the Smithsonian. The card is a Half-card so there is no problem with the 1000's short case. Edge connectors are gold plated.

Installation is an easy task. Turn off the computer, disconnect the keyboard and remove the two screws from the front panel. Slide the case top forward and off the computer. Remove the back slot cover from the slot you are going to use. Save the screw. Plug the Zuckerboard in firmly. Replace the screw to hold the board in place. Slide the case top back in place. Replace the two case screws, connect the keyboard and fire up the computer.

The display should reflect the new amount of memory that has been installed. If anything other than the correct amount of memory is displayed, turn off the computer and retrace the installation. Be sure that the board is seated properly and that the one

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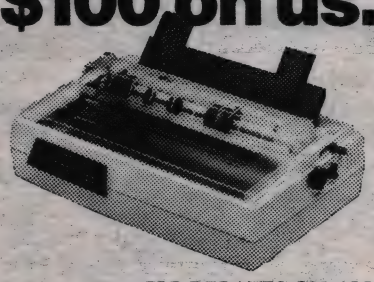

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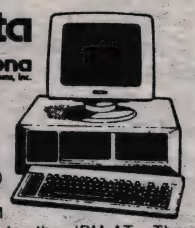

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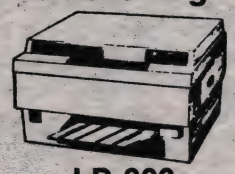

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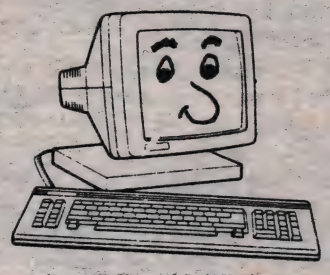

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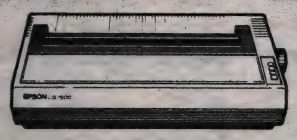

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TIMEX-SINCLAIR

Sinclair Survival Column

by Mark L. Fendrick

Just as last month's column proclaimed that we were now covering an actively produced computer, Sinclair sold its computer business to Amstrad Consumer Electronics PLC. This move, which came unexpectedly, leaves the future of the U.S. market for Sinclairs in general, and the QL inparticular, uncertain at the moment. To bring you up to date, here is what has happened.

On April 7, 1986, Sinclair Research Ltd. announced that it had sold the rights to produce and market the Sinclair line of computers worldwide. The computer division which once was valued at $197 million had sold its rights to these micros for $7.3 million to Amstrad Consumer Electronics PLC. The sale of computers accounted for 90% of Sinclair's income last year. This arrangement precludes Sir Clive from selling computers under his own name. The British press was announcing this agreement as the end of an era. Sinclair Research lays claim to being the first company to sell a million computers. The figure at the moment is approaching four million computers.

Although Sinclair had been having financial difficulties, twice rescheduling its overdue debt, the sale was unexpected. In February, the Sinclair Spectrum 128 was introduced in the United Kingdom, and it looked as if Sinclair's financial difficulties were behind them. As recently as just a few days before the sale, in a conversation with Nigel Searle of Softsync (former marketing director of Sinclair in the U.K., and later director of North American operations), I understood that Sinclair had turned itself around and was about to announce a new marketing agreement concerning the QL. (More about this shortly.)

On April 7th, Sinclair issued a press release which announced a "radical restructuring of its operations...to form a number of separate businesses to exploit its innovative technology in telecommunications, semiconductors and computers."

Sinclair will continue development on computers, particularly its Pandora portable which will be combined with its flat screen TV technology. (In another deal, Sinclair has granted Timex the worldwide rights to produce and market its flat screen TV.) Amstrad will have the right to refuse any Sinclair computer products, which would leave Sinclair free to offer the technology to other companies, although the Sinclair name cannot be used.

Sinclair Research will continue work in a number of areas, and develop them into self-financing entities as they reach maturity. These projects currently include development of a 40 Mbyte wafer chip based on technology produced by Sinclair's Metalab research facility. A second business is to be dedicated to development of new telecommunications products. Financing for this project has already been committed.

Sinclair will become a contract research company, making its research and development teams available to selected organizations worldwide. This operation will be personally supervised by Sir Clive, together with Jim Westwood — present director of research at Sinclair Research.

Sinclair Research will become the holding company for its interests in these new ventures.

Amstrad, one of Sinclair's main competitors in Europe, sold 750,000 computers in 1985 and fully expects to sell one million this year. Sinclair computers accounted for about 40% of the British home computer market, and Amstrad about 20%. Amstrad chairman, 39 year old Alan Sugar, says that the Sinclair computers will represent the entertainment end of its computer business while the current Amstrad line will represent the business line. (We will discuss the QL shortly.) Mr. Sugar explained, "The deal is good for both of us. Sinclair is good at research and this gives them the money to press on with it. We are good at marketing and this gives us another wonderful product to sell." He has also been quoted as saying that he knows nothing about computers, just how to sell them. Sir Clive, on the other hand insists, "I am an inventor. Once a product is developed I want to get out. I am not a manager and don't pretend to be. My job is to produce ideas and proselytize them."

Amstrad will take over the production of the Spectrum + and Spectrum 128 as existing contracts run out. One of the issues Amstrad intends to address is quality control — a situation about which Sinclair had always been criticized. Also being considered are enhancements, such as a built-in tape unit.

Software will also occupy Amstrad's interest. They will be advising software producers and those cooperating in this program will be able to feature the "Amstrad Approved" logo.

Amstrad has committed to selling these computers into 1987 in the European market. The American situation, however, is still uncertain. As of mid-April, no decision had been reached.

The situation as it concerns the QL is even less clear. Production had ceased on this computer as sufficient stocks had been reached, and they are now selling from this stock. In early interviews, Alan Sugar indicated that the QL might be dropped from Amstrad's line, but that no decision will be made until his technical people examine the machine and the marketing types review the situation. There is talk of a second generation QL being produced which would have disc drives to replace the microdrives on the current computer.

A new development has indeed surfaced regarding the QL in the United States. Before the Amstrad deal, Sinclair signed an agreement with A+ Computer Response, of Keene, NH, to be the sole distributor in the U.S. A+ (pronounced "A plus") Computer Response is a young company, headed by Carol Whitham and her husband George, previously involved in selling Apple, IBM, and now IBM clones as well as peripheral products.

Mrs. Whitham first became aware of the QL computer while on a trip to London in 1984, where she met Nigel Searle of Sinclair, and some of the folks at Psion who were contracted to produce the software currently bundled with the QL.

Believing that Sinclair was trying to market the QL in the U.S. with little or no support from the U.K., talks were started with Sinclair's new U.S. director, Terry Shurwood. Mrs. Whitham believes that Sinclair needed support for the QL from people who cared and were committed to the success of the computer in the American market. A+ felt that they fit the bill, and have purchased the entire inventory of U.S. QLs, monitors, printers, Flat Screen TV's and assorted software.

A+ will not be selling direct to the public as Sinclair did, but will form a network of authorized dealers to carry the line. Initial response from dealers has been extremely encouraging—even greater than had originally been anticipated—according to Mrs. Whitham. According to initial estimates, there is enough stock for about two years, although A+ has committed to support the QL well beyond that time. A+ is promising to support its dealers with national advertising and faster shipments of stock than Sinclair had been providing.

At the moment, A+ has not yet had contact with Amstrad, but plans to arrange a meeting in London after the Midwest Sinclair Festival in Cincinnati, Ohio, which they are supporting and attending. Mrs. Whitham is very enthusiastic about this new venture, and hopes to convince Amstrad that sales will warrant going back into production for the U.S. market.

Mrs. Whitham has been interested in computers for about four years, since she met her husband, who was in EMF's marketing service. (EMF is MicroSync — the former Sinclair authorized service center.) A local Apple dealer hired her for office work in his store, but she soon found herself in sales, and for 2 years was the top salesperson — "beating all the men," as she is proud to point out. She eventually became the manager of the store. It was at this point that she visisted London and was introduced to the QL. Originally Carol sold Apple computers and supplied computer equipment to 72 schools in 3 states for Micro Services of New England, Inc. At the beginning of 1985 A+ Computer Response was founded. They added IBM clones and Okidata and Amdek peripherals, and then moved from the living room to the attic. This February they moved into new offices, having completely outgrown the homestyle operation.

What will be the future of sinclair computers? That is unknown at the present time, so stay with us here in *Computer Shopper* for all the latest information. In the meantime, we will continue to report on developments that take place, and programming features for all current Sinclair computers.

In spite of this, the Midwest Timex Sinclair Computerfest was a smashing success. On the first weekend in May, the Sinclair computer groups of the Greater Cincinnati area staged the first Sinclair show since the Boston Computer Club's 1983 Sinclair Celebration. As a matter of fact, as I write these words, I am sitting in the exhibition area with Carol Whitham from A+ Computer Response. "There are so many dedicated Sinclair people out there," she says, "it's really exciting!" A+ is looking forward to truly supporting the QL through its authorized dealers. "The support in the past was a sad situation. We are looking forward to correcting and improving this situation." A+ has donated a complete QL system as a door prize at this computerfest. "We don't want to compete with our dealers in supporting the end-user, but will be there to support the dealers themselves." Authorized repairs will no longer be handled by EMF, but by A+ themselves. Extended warranties will also be offered. Mrs. Whitham hopes to visit each of the authorized dealers in the near future. A+ is looking to keep the QL alive as long as possible, and with the expected dealer and user interest, eventually the next generation QL.

To find out who your nearest authorized QL dealer is, send a SASE to A+ Computer Response.

The general reaction at the show has been much greater than had ever been anticipated by the organizing committee. (In fact the response was so great that A+ is now planning for a series of shows to be

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Sinclair Survival continued from page 79

around the country. Some of the locations being considered are NY, Boston, South Carolina, Arizona, San Francisco and others. The dealers attending the show have been demonstrating to the end users in attendance that support for the entire Sinclair line is far from being finished. Support for all Sinclair computers, from the ZX-81 through the QL has been shown here in Cincinnati. The demand for ZX-81 information and supplies surprised everyone. It was standing room only at the presentation of current uses of the ZX-81 family of computers. There were 12 hours of lecture/demonstration (2 of which I was pleased to be asked to present) during the two days.

At the moment, I am sitting in the Knighted Computers booth. Knighted has made its mark in the American Sinclair market by converting Spectrum software to run on the unmodified T/S 2068. They have obtained the rights to the entire Quicksilva line and to date have modified more than 30 games from a number of publishers including Virgin and Digital Integration. Games such as Night Gunner, Trashman and other popular games are now available from Knighted. Ray Payne has informed me that they now will be releasing the Durell line for the T/S 2068. At the show, Knighted has been selling hardware and books for the QL.— they sold out of the QLs which they brought with them — and software for the QL. Knighted is one of the newly approved U.S. QL dealers. For your copy of their catalogue write to Knighted Computers.

Moving over to G. Russell Electronics booth, another newly authorized QL dealer, we encounter Bill and Gerry Russell, who have been in the Sinclair support industry since 1982. Probably best known for their Winky Board cassette interface and ROMSWITCH Spectrum emulator (which they have sold out of at this show), they are excited about the prospect of continuing with the QL under the new conditions. Their first newly developed QL product is the Q-pressor. The Q-pressor is a surge suppressor containing three outlets at a remarkably low price. Using state of the art ZNR surge suppressors, the Q-pressor works faster and more completely than other conventional units on the market.

A number of new projects are now in development, and will be brought to the market by a newly invigorated Bill Russell. "The enthusiasm of all concerned with this show has been so high," says Russell, "that it has given us the emotional 'recharge' that we needed. There are high expectations again concerning the QL." For a copy of their catalogue write to G. Russell Electronics.

Zebra Systems came to the show just as their new sign maker and banner programs were ready to hit the market. In fact, as Stewart Newfeld was driving to Cincinnati, his development team was still working on finishing the testing of these new programs. As with Greeting Card Designer, these programs use a library of included graphics to produce either an 8½x11 inch poster, or a banner on continuous feed computer paper.

Another name long known to the Sinclair world was finally connected to a face. Mark Steuber, of Sharp's, as in attendance showing off his recently completed QL version of his classic war simulation. War in the East. This program was first made available for the ZX-81. Packaged in four parts — a master program with three modules — the QL version makes use of the high resolution display and windowing capabilities of the computer. War in the East represents the first U.S. software to be released for the QL. Sharp's too, is a newly authorized QL dealer.

AERCO was not to be excluded from these goings on either. Jerry Champkis was present, showing off his well known interfaces and disk drive systems, as well as the newly released version of CP/M. AERCO's booth was busy from the time the exhibition hall opened until the last user left, so I was unable to have much of a chance to talk with Jerry, but will soon be taking an in depth look at the disk drive systems that have become the standard in the Sinclair market.

If mass storage is your interest, but you don't want to spend the money for a full disk drive system, you may have stopped by the Damco booth, where the Rotronics Wafadrive was being demonstrated. When connected to a Spectrum emulated T/S 2068, the Wafadrive uses a stringy floppy cartridge to store your programs and data. Also available at the Damco booth was the Rainbow interface which gives your T/S 2068 Spectrum software and hardware compatibility.

The Time Designs Magazine Company has obtained the publishing rights to many Sinclair books which had been dropped by the original publisher. The Dilithium Press line of Sinclair books is now being published by Time Designs as well as a new printing of the T/S 2068 Technical Manual. This time the manual is properly printed with a spiral binding, unlike the original photocopied version published by Timex.

Other dealers present at this event are Variety Sales; Brice Road Pharmacy; T/S Connection; assorted users groups and Sinclair related publications — especially *Computer Shopper*.

One of the things that was quite evident in Cincinnati was the high degree of cooperation between the vendors present at the show. Unlike dealers for other computers, Sinclair dealers often refer customers to another dealer who can satisfy that customer's need. The Sinclair community has shown that it is truly one large family.

In general, the Midwest Timex/Sinclair Computer Festival showed that the Sinclair community in North America has not, and is not about to, throw in the towel. Users groups got together in a new spirit of cooperation, T/S 2068s were still being bought and new products made their debut. New products for the T/S 1000 computers were shown and new projects discussed. T/S 2068 computer owners still can look forward to further development, and there is a whole new outlook for the QL — from the dealers to the end user.

Special thanks to the folks at C.W. Associates, who allowed me to use the QL they were displaying to put the finishing touces on this month's column.

What about the door prize of a complete QL system? It was won by David Jeruzalmi of Cincinnati who had come to the show with a friend. David, however, was one of the few non-Sinclair owners at the show. In fact, David had no computer at all...until now! A 21 year old student at the University of Cincinnati, he was at home when he received the news. Although he was very excited over winning the computer/monitor/printer combination (donated by A+), he wasn't yet sure to what use he would put his prize.

This weekend seems to signal the start of a new era in Sinclair support. On to the next show.....

Knighted Computers, 707 Highland Street, Fulton, NY 13069; 315/593-8219.

Russell Electronics, RD 1, Box 539, Centre Hall, PA 16828; 814/364-1325.

Damco Enterprises, 67 Bradley Ct., Fall River, MA 02720; 617/678-2110.

A+ Computer Response, 69-B Island Street, Keene, NH 03431.

Sharp's Inc., Rt. 10, Box 459, Mechanicsville, VA 23111; 804/746-1664.

Brice Road Pharmacy, 1653 Brice Road, Reynoldsburg, OH 43068; 614/861-3600.

T/S Connection, 3832 Watterson, Cincinnati, OH 45227; 513/271-5575.

AERCO, Box 18093, Austin, TX 78760; 512/451-5874.

Time Designs Magazine Co., 29722 Hult Rd., Colton, OR 97017; 503/824-2658.

Zebra Systems, Inc., 78-06 Jamaica Avenue, Woodhaven, NY 11421; 718/296-2385.

Variety Sales, 325 West Jersey Street (2-D), Elizabeth, NJ 07202; 201/289-5699. ●

New Version Of Popular S*T*A*M*P*S

S*T*A*M*P*S, the popular computer program designed for collectors of American postage stamps is now available in a new version featuring the issues of the United Nations.

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The S*T*A*M*P*S program is designed to be run on the IBM PC and all compatibles. A minimum system requirement consists of 256K of memory, two disk drives, and a printer.

The S*T*A*M*P*S package sells for $95, plus $1.75 shipping and California sales tax if applicable. When annual market price update disks are published, they can be ordered for $35. Delivery on products is one week.

S*T*A*M*P*S Program

The update disk can be merged with the user's existing S*T*A*M*P*S program to automatically replace each stamp's previous value with its current market values. The entire process takes approximately 20 minutes — quite a contrast from the hours, even days, that could be dedicated to the task if handled manually.

Previous purchasers of the program can obtain the new United Nations version for only $45. This policy will prevail as additional country collections are announced.

For collectors who would like to sample the program before committing to purchase it, a special no-risk offer is provided by Compu-Quote. Potential S*T*A*M*P*S users can obtain a demonstration Preview-Pack for only $15. The demonstration version enables users to enter up to 25 stamp records allowing them to witness the capabilities and pricing features they will find duplicated in the full program.

The S*T*A*M*P*S program and/or demonstration Preview-Pack are available direct from Comp-Quote. Visa and Master Card orders are accepted.

For more information contact Compu-Quote, 6914 Berquist Avenue, Canoga Park, CA 91307; (818) 348-3662.

Mention that you read about it in *Computer Shopper*. ●

ROBOTICS

Probots And People

by Tim Knight

You, like myself, have probably heard countless, "rags to riches" stories about people who participated in the growth of personal computers. The most famous includes:

—Bill Hewlett and Dave Packard of Hewlett Packard.

—Steven Jobs, Steven Wozniak, Mike Markula, Michael Scott, and hundreds of others at Apple Computer who became rich when Apple Computer went public.

—The countless teenaged "whiz kids" that built their own businesses or went to work for video game companies when they were 15, 16, and 17 years old. These youngsters (count me in—I'm still only 19) found a niche in the field of computers and went on to make a lot of money at it. Some could afford a Porsche before they were old enough to drive one, and a handful went on to become millionaires before their 25th birthdays.

Stories like these are what Silicon Dreams are made of. The beauty of it was that most of these people behind the success stories loved what they were doing, wanted to make a product that they would want to have themselves, and in the process happened to make a lot of money at it. Bill Dodd of Hobby Robotics Co. twice attempted to establish his personal robotics manufacturing business and failed although he offered excellent products at reasonable prices. In 1982, unfortunately, some people heard of the concept of personal robots and, instead of saying "That's a neat idea—I'm going to make a personal robot just for the fun of it," most people jumped the gun and thought "How can I make my millions out of this field as fast as I can, just like those guys did with computers?" Hence a number of companies sprung up with products that weren't worth one-fourth their price and, consequently, fell on hard times.

Things are better now, though. There is a new beginning in personal robots since those who were in it for a fast buck realized that there are no fast bucks to be earned in this field, and they'll come back when there are. The people remaining love personal robots and want to do something exciting in business that's never been done before. Being in the business myself, I would be the first to admit that in the back of our minds we really do want to "strike it rich" with robots some day, hopefully not too many years from now, but we're having the time of our lives in the process. Moreover, when personal robots really begin to take off, those who had faith and got in early will have a decent foothold against those who jump in late in the game simply for the money to be made. If you are one of those people who want to get into the field soon, there are a number of business opportunities available in personal robotics you might want to consider for yourself.

Making Personal Robots

Manufacturing a personal robot is a lofty dream that many entrepreneurs have. Unfortunately, if you want to do a thorough job, it takes millions of dollars. However, if you want to start small (beginning in a garage is almost a cliche, but it still works), you will probably want to tinker on your own for some time, perhaps with a partner or two, to develop the kind of robot *you* would buy if you saw it in a store. If you have a robot that wouldn't be too expensive to produce, is truly useful (or for some other reason would be popular), and is technologically feasible, you may be able to get the backing required in order to produce the machine on a large scale.

A true manufacturing business involves a lot of elements—engineering, marketing, support, publicity, and so on. Hobbyists, though, probably would rather make robots than do anything else in the field, and are therefore probably going to be the ones working until all hours of the night on their creations. No one knows if there will be a "Wozniak and Jobs" of personal robots or if they'll be in Cupertino, CA; Atlanta, GA; Baton Rouge, LA or New York, NY. If you want to give it your best shot, though, it's certainly worth a try—the worst you can do is wind up with just a robot of your own.

Retailing

The first robot retailer was the Robot Mart in New York City which was mainly a mail order operation. It was started in 1982 and lasted until 1983 selling parts for the Unicorn I Robot which was a construction article in *Radio Electronics Magazine*. It also sold Terrapin Robots and Robots made by Hobby Robotics who was the first manufacturer of personal robots.

There are currently only two robot retail stores in the United States. RobotLand in Boca Raton, Florida, which originally tried to sell big robots such as Hubot but decided to focus more on popular items, and Robot Center in San Jose, California, which opened March 16, 1985. Unlike the first computer store in the Silicon Valley, the Byte Shop, neither of these businesses have enjoyed meteoric success with franchises blossoming all over the country; however, these stores and the others that follow are poised to sell to the personal robot market when it becomes big enough to justify multiple stores.

Getting involved in retailing certainly doesn't require the kind of capital that manufacturing does. You have to determine what you're going to sell, how you're going to present it to the public, and where you are going to sell. The leaders of both RobotLand and Robot Center selected fairly affluent areas to begin their businesses so that even if the number of people coming in was low, the individual purchases would be substantial enough to pay the rent every month. As far as what to sell, both RobotLand and Robot Center are emphasizing the most popular robots since the bigger ones they originally thought would sell so well actually flopped. There is also a very successful store on Columbus Avenue in New York City selling nothing but toy robots.

You may want to open your own robot store, but there are some things you should know before you start:

—Many people will look on your establishment with amused curiosity; this will tend to fade with time, although there will always be some people who can't get over the idea of a robot store.

—You'll need a bare minimum of $25,000 to get started; this is cutting it very close, but it's either that or have an inventory of a few transformable toys.

—Don't even *think* about your big franchising plans until the market really takes off and your franchisees get their money's worth. I can't see the logic behind any robot store franchising before the second half of 1986.

Retailing can be enjoyable and is certainly the best way to know about the latest developments and products.

Third-Party Support

By late 1987 and 1988, there will be a significant demand for robot "extras"—software, add-on boards, and written material. There will certainly be compaines that you can write software and books for, or you might want to start out on your own. Adam Osborne got his start when no one would accept his *Introduction To Microcomputers*, so he began the Osborne Publishing Company and consequently sold 300,000 copies of his book. Some possibilities for third-party personal robot support include:

—Writing technical books. Computer books were tremendously successful in 1983, and one author reportedly received an advance of over a million dollars for his comprehensive software review book. Howard W. Sams, Tab Books, and many other publishing companies will probably start looking for books about robots as early as 1986.

—Writing for magazines. Only one magazine exists today that caters specifically to the field—*Personal Robotics Magazine*—however, more publications will undoubtedly spring up, and they'll need writers and product reviewers.

—Creating software for another company or to sell on your own. Applications software will be the only thing that makes personal robots useful, so if there are robots being sold, there's going to be a much greater demand for the software to support them.

—Making add-ons to enhance the power of personal robots. Many companies were built on simply one or two add-on boards for such popular microcomputers as the Apple II and IBM PC. If there is a popular personal robot with an open architecture, you could make a healthy business by coming out with an add-on for the robot.

The possibilities are certainly great, and it's going to take a lot of people to support a big personal robot market. As time goes on, keep in mind that *servicing* personal robots will also develop into a healthy industry—one in which you might want to take a part.

The Challenges of Start-ups

Being an entrepreneur isn't easy until you come home one day and announce you're a millionaire (the chances are much greater that you'll come home and announce that you'll have to shut down the business, I'm afraid). Especially with such a new field, starting your own business is incredibly risky, difficult, and nerve-wracking. The rewards, however, can be great in the long run; in addition, the excitement of the whole thing can keep you going strong in the short run. Remember, however, that you'll probably be working for nothing at all (in fact, you'll have to pay for the privilege of working since start-ups usually require plenty of the founder's money), but that's another risk people are willing to take if they have enough faith in themselves and their idea to pursue whatever dreams they have—even if it's something as crazy as a personal robot.

Tim Knight publishes Personal Robotics Magazine and is the president of Robot Center, the first personal robot store in Silicon Valley. You can write him at Computer Shopper, P.O. Box F, Titusville, FL 32781. ●

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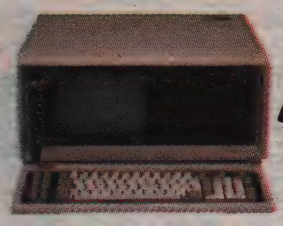

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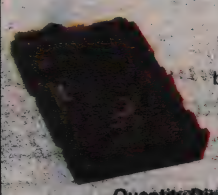

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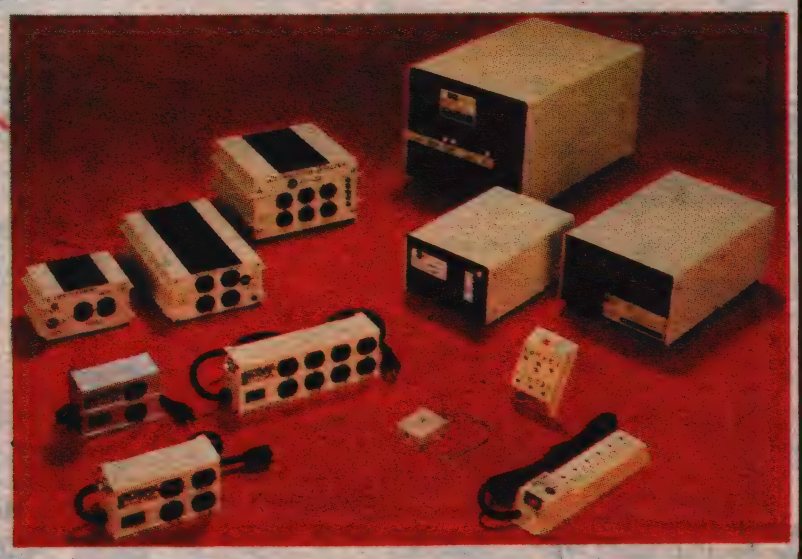

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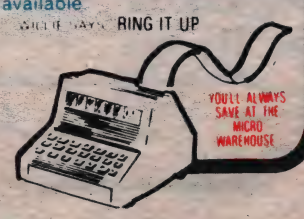

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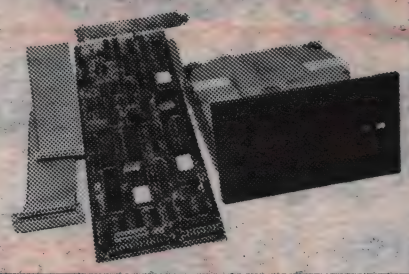

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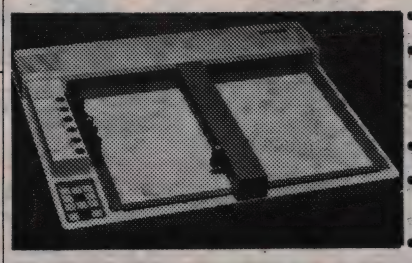

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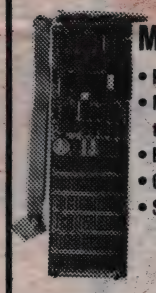

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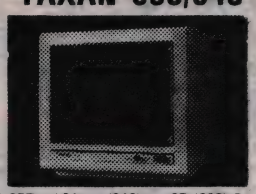

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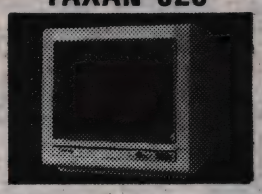

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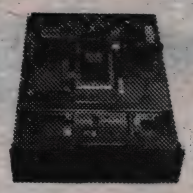

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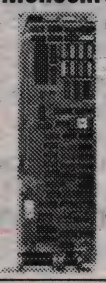

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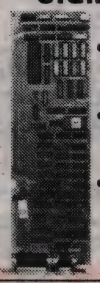

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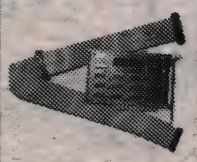

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A complete accounting, clinical and practice management system, includes defined report generator, patient billings and more. It is menu driven and has a built in user defined report generator that provides for unlimited formatting of patient bills, statements, encounter and insurance forms plus recall notices. The program can maintain single or multiple doctor practices with automatic third party insurance billing and tracking for multiple insurance companies per patient. It also has a flexible interest rate system, multiple levels of password protection and allows for user defined period closes. Under MP/M it is a true multi-user system.

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An interactive computer system which provides comprehensive in-house office automation for doctor offices, medical groups, etc. Features include: Patient Billing and Accounts Receivable, Demand Billing, Insurance Processing (including electronic claim

continued on next page

Dr. Eric Jaffe — Computers for Research

Eric Jaffe, Professor of Medicine at New York's Cornell University Medical College has long been a proponent of computers within the field of medical research. As one of the early Apple owners, Eric was an active member of "BAUG" (New York's "Big Apple User Group") and introduced Apples to his Cornell work environment. When the IBM-PC made its appearance and it became evident that there would be a much larger universe of quality software available, Eric moved to that convention—"We now have 20 PCs of various models, PCs, XTs and ATs. They are used primarily for the gathering of research material and word processing. We use "Wordstar" for word processing and supplement it with "Webster's New Word" spelling checker and a product that has proved invaluable, "Reference Manager" from Research Information Systems. This program allows us to catalogue the reference material that will be used for articles and papers, search the data base and, by utilizing system generated accession numbers, refer to the reference material in the word processing of the article. The completed Wordstar arfiicle file is then processed by Reference Manager which sets up the bibliography and references in the proper format. The system is terrific."

"We also make extensive use of on-line medical data bases. We use the "BRS" service to access "Medline" and we also utilize "PRQ" (NOTE: "BRS" is the "Bibliographic Retrieval Service," Lantham, NY which provides access to many commercial and scientific data bases; "Medline" is a database containing over 600,000 bibliographic references and abstracts of articles on biomedicine; "PDQ" is a database from the National Cancer Institute that provides information on cancer therapy and institutes and doctors who provide it.)"

"Additionally, we do a number of other things on the computers. We do our grant accounting and management using "PC-File." Some of us use "SuperCalc III" for data analysis and printing graphs on Epson printers. We are also adding a plotter for this purpose. I use "MiniTab" for some statistical analysis while others are connected to our central computer system to use "SPSS."

It is obvious from talking to Dr. Jaffe that the daily office routine in the Cornell's Division of Hematology-Oncology has been changed dramatically through the use of computers. These changes have come primarily through impetus from Dr. Jaffe who was first exposed to computers as a Downstate Medical Student doing a summer project that required the use of a simulation system on an IBM 1401. This experience led him to do some Fortran programming and left him comfortable with computers.

In 1978, after his reading gave him the feeling that technological developments had reached the point that microcomputers could benefit his work, Eric took an adult education course in the Scarsdale, NY community in which he lives. The course, which provided him with "hands-on" use of a TRS-80 Model 1, Commodore Pet and an Apple II, convinced him of the value micros could bring to his office and he arranged to have an Apple II installed there.

The Apple II proved immediately useful for word processing using Muse Software's "SuperText" and Eric foresaw the time when each person would want a computer on their desk. The specific requirements of medical writing also led him to purchase the Sanders "Media 12/7" printer which, in addition to producing almost typeset quality output, provided the ability to print subscripts, superscripts and Greek letters.

The equipment investment soon increased to 3 Apples & 2 Sanders as more and more activities became supported by computer. Eric watched the IBM-PC introduction with interest and, when double sided disks were introduced, began to move Cornell in that direction.

The involvement with the IBM-PC was not limited to the office. One of the early members of "NYPC" (The New York IBM Users Group), Eric accepted various positions of responsibility within the organization until he became the second president of that organization in 1983 (Although Eric does not regret his experience as President, it was extremely time-consuming and, upon his retirement from the position at the end of his term, he curtailed his non-work related computer activity).

Eric sees an ongoing acceleration of computers used in medical research—"As more and more data becomes available on remote data bases and as the price of computers and on-line services become cheaper and cheaper, computers will become mandatory. You won't be able to get along without them." ●

Medical Resources Continued from page 89

submission), Open Claims Tracking, Collection Management Modules, Patient Appointment Scheduling, Revenue Distribution Systems, Open Item or Balance Forward Accounting, Report Generation, Word Processing, Financial Systems (General Ledger, Accounts Payable, Payroll), Budgeting and Forecasting, Electronic Spreadsheet, Prepaid HMO Membership, Utilization, Eligibility Modules, Diagnosis/Demographic Study Programs and over 1000 Personal Computer Application Programs.

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Designed for use in a single-physician office, it maintains medical records for up to 300 patients. The program records diagnosis, treatment and vital statistics such as blood pressure, height and weight. Patient Files provides space for physician notes in each person's file.

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PROFESSIONAL DATA MANAGEMENT

A practice management software system designed for the eye care professional. Features include: (1)Complete detailed patient base information management including: patient demographics, current balance and insurance information, prescription values for glasses and contact lens and diagnostic and drug reaction concerns. (2) Full Accounts Receivable module including integrated insurance form printing and sophisticated revenue and productivity reporting. Reports include: Daily Payments Report, Detailed Patient Account Control Report, Summary Account Aging Report, Detailed Monthly Patient Statements, Comparative Report of the current period revenues to the YTD revenues of the Doctor, the Clinics, the insurance classifications and areas of service, Detailed listing of all services that have been performed by a particular doctor, at a particular clinic, or within a particular insurance classification, Comparative analysis of the services performed in the current period showing comparison between doctors, clinics and insurance classification. (3) Staff support functions include patient inquiry, file labels, mailing labels, recall cards and rolodex cards. System design allows integration of a work processing system for the creation of specialized form letters.

MEDICAL BILLING SYSTEM VER-2.0

PREMIER SOFTWARE SERVICES INC

Medical billing of fiscal intermediary and insurance company as well as private patients and full accounts receivables. The system provides patient profiling, medical forms billing and full accounts receivable function that includes aged trial balance,delinquency reporting, write-off analysis. Medical Billing also includes a communications module that supports electronic forms transmission and claims inquiry.

THRESHOLD VER 2.0

PHYSICIAN PRACTICE MANAGEMENT

This is a complete medical office management system featuring accounts receivable, electronic claim submissions. THRESHOLD is a stand alone medical office management package consisting of over 120 COBOL programs that include: full operator security and logging, extensive on-line help, completely menu driven with learning dynamics incorporated, message system, user added help. Functions include: all insurance filing requirements including direct electronic submission of claims to insurance carriers, all statement processing, complete practice management, clinical studies, referring physician reports, day sheets. Patient and name orientation make the package easy to use.

COMMUNICATE AND WIN

AMERICAN EAGLE SOFTWARE INC

This program was developed by behavioral psychologists and provides the user with techniques for dealing with people. Through this package the user develops game plans for interactions with customers, supervisors, employees or suppliers. It aids the user in determining how to best approach people and communicate ideas. With Communicate And Win, the user can build profiles of others as well as of himself.

P.A.R.I.S. - V. RELEASE 2.8

PARKER COMPUTER SYSTEMS

A complete physician account billing and insurance claim processing program. Other functions are aging of accounts recall/scheduling, practice analysis and patient analysis. P.A.R.I.S. (Physician's Accounts Receivable and Insurance System). The system is 'user friendly' with easy to understand questions and excellent error checking. User definable report selection of patient master and history information with interface to word processors for letter writing capability.

continued on page 197

MISCELLANEOUS

CompuServe Adds 700 New Databases Through IQuest

CompuServe Incorporated has announced it is providing access to 700 additional databases through its CompuServe Information Service, already the nation's largest electronic information service.

The new databases are made available to CompuServe's 280,000 subscribers through IQuest, a gateway service developed jointly by CompuServe and Telebase Systems. In addition to accessing a wealth of electronic information, IQuest also guides the inexperienced user by offering a series of simple menu choices and free on-line assistance from a trained operator.

"IQuest is one of the most comprehensive reference products available," said Richard A. Baker, CompuServe's manager of editorial services. "The quantity and quality of the information are outstanding. Users of IQuest need not be experts in database search techniques — it's extremely easy for the novice to use, and quick for the expert. Also, it contains some databases that were previously available only to trained researchers. Thus, we consider it to be an excellent complement to our other information products."

The databases accessible through IQuest cover subjects ranging from business and technology to humanities and the social sciences. They contain information from books, magazines, newsletters, reports, dissertations, conference proceedings and other source documents. The databases are supplied by 13 vendors, including Dialog, NewsNet, Datasolve of England, Questel of France, and DataStar of Switzerland.

The IQuest databases fall into two broad categories: full text and bibliographic. When searching full text databases on IQuest, the user is shown up to 15 titles per search, and may choose one for display of its full text for no extra charge. When searching bibliographic databases, the user receives up to 10 citations per search.

Bibliographic databases contain records which refer to other documents, such as journal articles, conference papers, books, etc. From many of the bibliographic databases the user can also review abstracts, or summaries, of documents on-line. In many cases, hard copies of the full original documents can be ordered from IQuest for overnight delivery.

CompuServe subscribers pay $7 per search (bibliographic or full text) when using IQuest, in addition to CompuServe's connect charges of $12.50 per hour during business hours and $6.00 per hour evenings and weekends for 300 baud service.

"One of the primary advantages of IQuest is that it's easy to use, yet extremely powerful," Baker said. "It provides a gateway to a vast array of information sources, but various features built into the system help the user minimize the time spent searching on-line."

Subscribers who are already familiar with the IQuest information sources have the option of directly selecting any of the databases offered. For inexperienced users, the IQuest menus help the user select an appropriate database. Additional help is available 24 hours a day through an "SOS" command, which brings a trained researcher on-line to talk with the user.

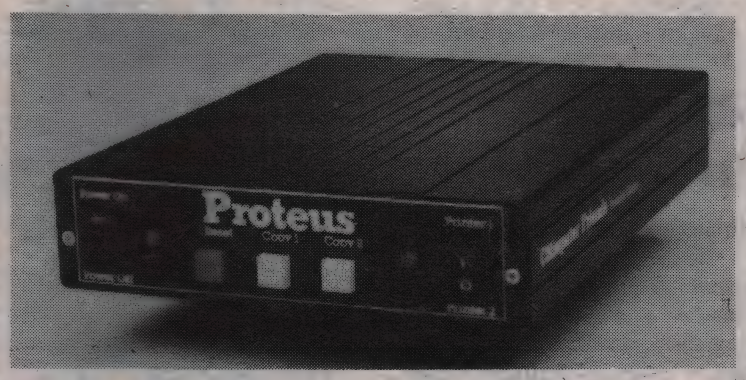
IQuest is based upon a service developed by Telebase Systems of Narberth, PA, under the sponsorship of the National Federation of Abstracting and Information Services (NFAIS). NFAIS is the professional organization representing the major database producers. Telebase also operates the Databasics publishing division, publisher of practical guides to on-line information services; and the MIW division, a consulting arm of Telebase serving current and prospective electronic information producers.

CompuServe, based in Columbus, Ohio, provides information and communications services to personal computer users through the CompuServe Information Service. CompuServe also provides electronic mail, value-added telecommunications network services and private videotex communications services to more than 1,100 major U.S. corporations and government agencies.

For more information, contact CompuServe, 5000 Arlington Centre Boulevard, P.O. Box 20212, Columbus, Ohio 43220; (614)457-8600.

Mention that you read about it in *Computer Shopper*. ●

Proteus Announced



Computer Friends, Inc. announces Proteus, Parallel Double Buffer and Data Switch. Proteus incorporates into one compact unit the following features:

*Buffer on each of the 2 output ports.

*Data Switch, either via front panel, manual control or via software.

*Multiple Copy Capability on both ports.

Proteus features "flexible capacity buffering." This means that at any one time, each output port is allocated as much memory as available. In a typical application, both printers connected to a Microcomputer, via Proteus, can be printing at the same time and the computer memory is immediately free.

Cost is $199 for the 64K version and $299 for the 256K version.

Availability is immediate.

For further information contact Computer Friends, Inc., 6415 SW Canyon Ct. Portland OR 97221, (503) 297-2321.

Mention that you read about it in *Computer Shopper*. ●

SoftSwitch Automatically Selects Printers

An auto-manual printer switch that uses simple embedded printer codes to direct the parallel output of any microcomputer between any two parallel printers has just been introduced by Touchstone Technology Inc.

The SoftSwitch is a solid-state decoding and switch ing device that can be used as a manual A-B switch or as a fully automatic software-controlled or code-sensitive switch. The unique circuitry (U.S. patents pending) switches all active lines and passes all acknowledgments and status signals to make the device compatible with all personal computers and parallel printers.

The SoftSwitch permits the selection of printers by any of four different methods:

*One-to three-digit printer codes embedded in the files of most popular word processors, databases and spreadsheets. The codes are non-printable characters, and whenever they are detected by the printer switch, all subsequent characters are sent to the selected printer.

*One-to three-digit printer codes included in a short print statement within user-written software.

*Manually from the SoftSwitch panel-mounted toggle switch.

*Manually from the computer keyboard with the company's optional ($9.95) RAM-resident console software.

While the SoftSwitch provides simple, convenient operation in all routine printer switching requirements, it is especially useful for repetitive switching tasks such as statement/collection letter, invoice/thank you note, and letter/mailing label combinations. Other applications include remote and unattended operations.

The compact case measures 5x5x1½ inches, and includes L.E.D. indicators. The $139.95 list price includes an external ac-to-dc power supply, complete operating instructions, and a one-year warranty. Cables are available from Touchstone at $17.00 each (5-foot ribbon cable with connectors). Three cables are required, one to the computer and one to each printer. The internal SoftSwitch headers require 2x18 (0.10" centers) sockets.

Additional information on the SoftSwitch auto-manual parallel printer switch is available from Touchstone Technology Inc., 955 Buffalo Road, Rochester, NY 14624.

Mention that you read about it in *Computer Shopper*. ●

Stand Your Ground Against Electrostatic Charge

by Paul F. VanSlyke

Although the phenomenon of electrostatic charge and discharge was known by the Greeks some 2500 years ago, it did not become a big problem until the integrated circuit "chip" came into use in electronics. Some time ago, a friend told me a story of this own experience with the perils of static. He was sitting at his computer when his wife casually walked across the room and placed her hand on his shoulder; his video screen went blank as his computer quit. Fortunately, some chip swapping with another computer revealed a faulty Ram chip, and after replacement the computer once again functioned properly. The cause was electrostatic discharge. As my friend's wife walked across the room, her feet rubbed against the carpet causing a static charge to form and when she touched her husband the charge was drained off, through his body, continuing on through the keyboard, and into the computer as it sought a ground.

In fact, any rubbing action of two dissimilar materials will result in the build-up of a static charge, with the greatest increase involving non-conductive materials. In the above example, the movement of the lady's feet across the carpet may have produced a charge of as much as 35,000 volts. Static sensitive RAM or ROM chips in the computer may be destroyed with a charge of only 2,000 volts. While these voltages sound large, they are usually accompanied by very low amperage (the power or push of electric current). Because of the low amperage, the effect on people is limited to the familiar tingle experienced when you touch some object that is grounded. If that object happens to be your computer, you may have a problem.

As you work at your desk you move: your arms move causing a rubbing action between your shirt and sweater, you move across your chair causing a rubbing action between your slacks or skirt and the plastic or fabric chair covering, you may roll your chair across the floor to another section of your work station. All of these actions may be creating a tremendous build-up of static charge.

The fight to control static discharge can start right in the home, in the laundry. Laundry products containing a fabric softener many times also contain a static inhibiter. In my search for these products I discovered no less than 17 in just one supermarket. Lining the shelves were 8 brands of fabric softener sheets for use in the dryer, 5 brands of liquid fabric softener for the washer, two powder detergents, and one liquid detergent -- all claiming static control formulas. The final product was a spray for dissipating static cling in your clothing after you are already dressed.

Further, in the work area the potential for disaster can be reduced in several ways. First, if you are thinking about new carpeting for the office or home you should consider a weave of nylon which will inhibit the accumulation of static charge. Second, you should check the humidity level in a problem area. Humidity levels below 10 to 20 percent may increase the potential for charge by as much as 20 times the potential in the same material existing in a relative humidity of 60 percent. Also sprays are now offered that may be applied to existing carpeting or sprayed on a cloth for wiping off equipment cases, chairs, etc.

A mixture I have found useful is one part liquid fabric softener in three parts water. I dampen a cloth with this solution and wipe off my keyboard, case, monitor, printer, and even the cables. At no time should you use a liquid inside your computer.

Finally, whether at home or in the office one of the simplest ways to reduce the hazards of static charge is to ground yourself. In a class I took involving microcomputers several years ago, the instructor told us to touch the screw on the light switch plate as we came into the room, thus draining off any charge we may have picked up on the way to class.

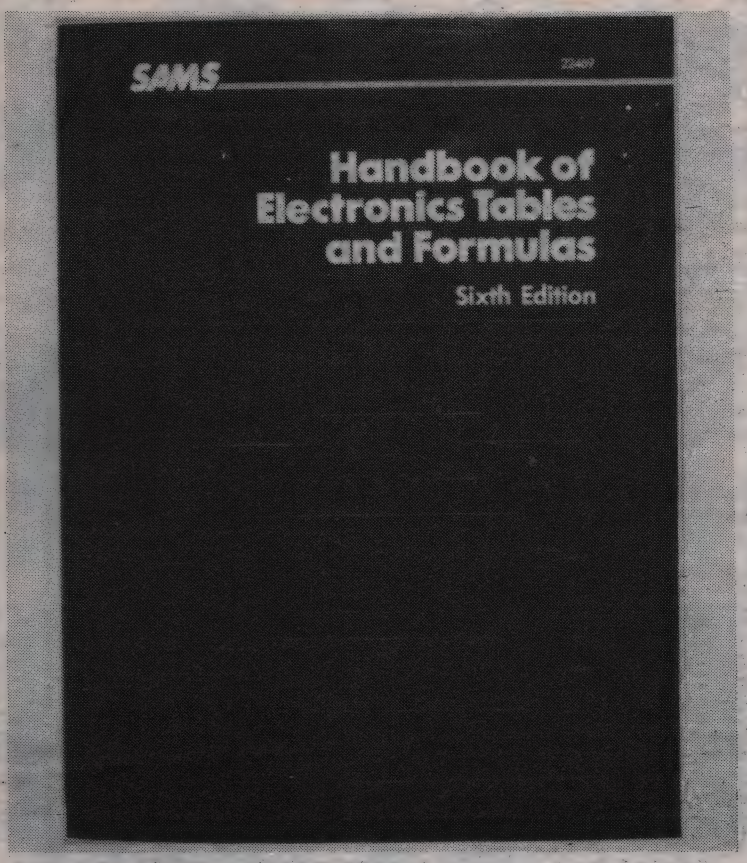
Several products have appeared on the market in the last few years that accomplish this grounding effect at many levels of cost. Anti-static mats that are placed on the area directly under your chair come in various sizes and may be grounded by means of a cord that is attached to the center screw of a convenient outlet. Other mats may resemble carpeting but have metal fibers woven into them -- these need no grounding wire.

Other devices I have seen in computer supply catalogs include a computer table made of a conductive material with a grounding cable, a mat that is placed under the computer or terminal and is grounded, and a self adhesive strip that attaches to the keyboard and is grounded with a wire.

Static control products also include anti-static hand lotion, anti-static cloth for wiping equipment, anti-static floppy disk mailer, and finally electronic devices that promise to send both positive and negative ions into the air surrounding the work area thus neutralizing static charges before they reach harmful levels.

While using the anti-static products currently available and exercising some caution will help eliminate some of the danger related to static electricity, nothing will completely eliminate the problem and caution should be exercised to prevent a disabling accident. ●

The Handbook For Everyone Involved In Electronics...



Howard W. Sams & Co. announces the sixth edition of *Handbook of Electronics Tables & Formulas* — the reference book for engineers, technicians, hobbyists and everyone involved in the field of electronics.

Already a classic this revised edition is sure to be found in every public and private library.

This expanded and updated sixth edition reflects the recent developments in the rapidly changing electronics industry. New in the softbound books' 265 pages you'll find computer programs (written for Commodore 64 with conversion in Apple, Radio Shack, and IBM) for calculating electrical and electronic equations and formulas. New formulas include power units, graphical reactance relations, power triangle, and decibels/voltage power diagrams. New constants include standard potentiometer tapers and the Kansas City standard. You'll also find:

- formulas and laws important to all branches of electronics,
- constants and government — or industry — established standards,
- symbols and codes used in the electronics industry,
- service and installation data,
- data used in service design work, and
- mathematical tables and formulas.

Written by the electronic engineering staff at Howard W. Sams, *Handbook of Electronics Tables and Formulas* retails for $19.95.

For further information contact Howard W. Sams and Company, Department R26, 4300 West 62nd Street, Indianapolis, Indiana 46268; (317) 298-5723; 1-800-428-SAMS.

Mention that you read about it in *Computer Shopper*. ●

Handicapping Software For Thoroughbred & Harness Racing

A new Horse Racing Handicapping package is available from The Softtech Group to run on most popular home and portable personal computers. This three program set, sophisticated enough for most professionals has been designed with the novice in mind, and priced at only $29.95. Programs include Thoroughbred and Harness Racing Forecasts and the Wagner Return Analysis. All programs are supplied on diskette or cassette and include a complete set of instructions.

Thoroughbred and Harness Racing Forecast Programs

These programs were designed specifically for evaluating the performance of thoroughbred and harness race horses. Years of evaluation and testing were performed before finalizing these programs. Only the most important data elements are taken into the forecast, as selected from the racing form (available locally, or at the track). Entering data has been simplified and can be accomplished in just a few minutes. Your computer performs the analysis, outputs ratings, sorts and orders the favorites. The sorted ratings may then be printed out on any line printer.

Wager Return Analysis

The Wager Return Analysis program is designed to track win, place and show finishes and percentage gains while at the track, parlor or home. It is an especially important feature when used trackside on a portable computer or calculator.

Our handicapping system has been successfully picking Win, Place and Show finishes for over four years! In a limited statistical sample, horses finishing in the money were priced in almost 70% of all races.

These programs are available on cassette or diskette, for the Apple II+, IIe, IIc computers, the Atari 400/600/800/1200 computers, Commodore 64 and VIC-20, the IBM PC, PC-XT and compatible machines, the TI-99/4A, and the Radio Shack TRS-80 Model III/4, Model 100 and Color computers. This three program set is priced at $29.95.

For additional information contact The Softtech Group Inc., P.O. Box 582, Keego Harbor, MI 48033; (313) 851-4925.

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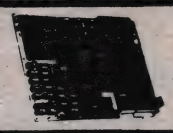

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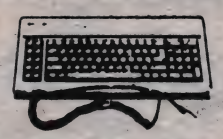

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With 64K / On Board

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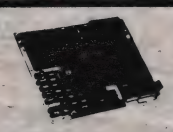

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DB-15 HOOD	SMDC-15H	.79
DB-25 PLUG	SMDC-25P	.75
DB-25 SOCKET	SMDC-25S	.79
DB-25 HOOD	SMDC-25H	.86
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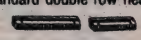

	Part No.	Price
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These headers mate with the ribbon cable connectors above.

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We bargain hard with the same people who turn out many of the "famous name" brands. Their manufacturing capacity far exceeds their capability to sell everything they make. So, as large scale purchasers, we are able to obtain significantly lower prices than others for ***high-quality*** diskettes.

For example, we pay one of the big name manufacturers 98¢ for their "famous name" diskette in a pretty box. In an unequalled display of favoritism, that same manufacturer sells the same diskette in the same fancy box to a major corporation for 42¢ each. Finally, a software duplicator can buy the same diskette *without* the box for 37¢!

A 265% price difference: for what?

In the example above, that's a difference of 265% in price for the very same diskette!

So you see, paying for a "famous name" on a diskette doesn't guaranty you that you're getting any more for the money.

You may be paying for some big corporation's fleet of aircraft and their executive retreats in Minnesota and Canada, but you are not paying for any more quality.

You're simply getting rooked out of money you could have in your own pocket.

There are four kinds of diskettes: And Super Star™ is right up there with the best.

As you leaf through the pages of this magazine, you will see diskettes advertised at prices as low as 33¢. Every one, of course, claims to be the "best".

It's simply not true.

Here are the only kinds of diskettes you can buy:

High-Clip Product: this is what you get when you buy Super Star™, 3M™, Maxell™, TDK™ or any number of other famous and not so famous name diskettes. They have clipping rates of 60% or more, are certified for ten million read/write passes or more and are simply the best diskettes available. You can expect perhaps 1 out of 100,000 to fail...and that will usually be the result of dirty or misaligned drives.

ANSI Spec Product: These are "okay" diskettes. They have a clipping level of 40%. Usually they are the fall-out from a manufacturer's "high-clip" product line. You can expect about 1 out 20 to fail in normal use. (But that failure rate has more to do with the disk *drive* rather than the diskette.) The price difference between an ANSI-spec disk and a High-Clip product is only a few cents. But the failure rate of ANSI product is 50,000 times higher!

Duplicator Product: This is a catch-all category. Some of it may be High-Clip Product, some ANSI spec, some cosmetically blemished, some garbage. Usually anyone who buys product in this class justifiably anticipates that 20 out of every 100 diskettes will not format properly.

Floor Sweepings: This is just plain "garbage". For example, the 5.25" SSSD diskettes that you see advertised for 39¢ are exactly that: garbage. No decent manufacturer has sold any 5.25" SSSD diskettes in several years. SSSD is the absolute bottom of the line in terms of quality. Most of the discount diskettes you see advertised are "floor sweepings"...bought up by brokers and passed on to the unsuspecting public by unscrupulous merchants who are simply out to make a fast buck.

When every bit counts, you can count on Super Star™!

Well, I wish we had more space, but we don't.

So, here's the message in a nutshell:

1. Super Star™ diskettes are high-clip product, 100% certified, tested to 60% or higher clip levels and not less than ten million read/write passes.

2. Super Star™ diskettes carry a LIFETIME WARRANTY.

3. Super Star™ diskettes equal or exceed the published specifications of such "famous" brand names as 3M, Maxell, TDK, etc.

4. Super Star™ diskettes give you this quality *at about half the price of the big names!*

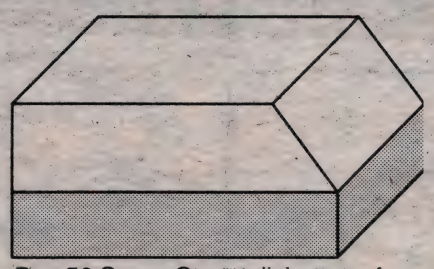
Save your money: buy Super Star™ diskettes!

That's the message:

Super Star™ diskettes mean the highest quality at about half the price!

SUPER STAR SPECIAL!

Your choice of storage for $ 4.95!



Buy 50 Super Star™ diskettes of either size and you can get a nice plastic storage case for only $ 4.95 (shipping included!).

These are durable plastic cases with dividers.

The 5.25" unit holds 50 diskettes and the 3.50" unit holds 40 diskettes.

5.25" Storage Unit (P/N3100) $ 4.95ea.
3.50" Storage Unit (P/N3102) $ 4.95ea.

Super Star™ 5.25"

SSDD (P/N3800)	**.55ea.**
DSDD (P/N3801)	**.62ea.**
SSDD96 (P/N3802)	**.78ea.**
DSDD96 (P/N3803)	**.82ea.**
DSDDHD (P/N3804)	**$ 1.61ea.**

ORDER IN MULTIPLES OF 50 ONLY!

All Super Star 5.25" Diskettes are poly-bagged in lots of 25 with Tyvec sleeves, write-protect tabs and user ID labels

QUANTITY DISCOUNTS: 350-500 diskettes, deduct 3%. 550-700 diskettes, deduct 6%. 750-1,000 diskettes, deduct 9%. 1,050+ diskettes, deduct 12%

Super Star™ 3.50"

SSDD (P/N3805)	**$ 1.52ea.**
DSDD (P/N3806)	**$ 1.67ea.**

ORDER IN MULTIPLES OF 50 ONLY!

Super Star 3.50" diskettes are packaged in boxes of 50 with user ID labels.

QUANTITY DISCOUNTS: 350-500 diskettes, deduct 1.5%. 550-700 diskettes, deduct 3%. 750-1,000 diskettes, deduct 4.5%. 1,050+ diskettes, deduct 6%.

TAKE A CLOSE LOOK AT OUR DISCOUNTS!

Take a real close look at our discounts. They're some of the best around.

HOURS:
8AM-6PM Central Time
Monday - Friday

HOW TO ORDER:

ORDERS ONLY:
1-800-621-6827
(In Illinois: 1-312-256-7140)

INQUIRIES:
1-312-256-7140

FOR FASTEST SERVICE, USE NO-COST MCI MAIL. Our address is DISKORDER. It's a FREE ,MCI MAIL letter. No charge to you. (Situation permitting, we'll ship these orders in 24 hours or less.)

SHIPPING: 5.25" & 3.50" DISKETTES-Add $ 3.00 per each 100 or fewer diskettes. **OTHER ITEMS:** Add shipping charges as shown in addition to other shipping charges. **PAYMENT:** VISA, MASTERCARD and Prepaid orders accepted. **COD ORDERS:** Add $ 5.00 special handling charge. **APO, FPO, AK, HI & PR ORDERS:** Include shipping charges as shown and additional 5% of total order amount to cover PAL and insurance. We ship only to United States addresses, except as shown above. **TAXES:** Illinois residents add 7% sales tax.

MINIMUM ORDER: $ 35.00

DISK WORLD!, Inc.

629 Green Bay Road
Wilmette, Illinois 60091

The greatest value ever
Special Offer on BASF Qualimetric diskettes!

Buy 10, get 12 and a FREE storage case!

This is an *exclusive* offer from **DISK WORLD!**...your chance to buy 5.25" BASF Qualimetric diskettes at our low prices and

...get 12 instead of 10 and
...get a FREE plastic storage case (a good one, not a cheapie)!

.79 ea. <- SSDD DSDD -> **.90 ea**
Qty.50 Qty.50

Quantities are limited, so act now!

BASF special promotion diskettes are in plastic boxes of 12 with Tyvec sleeves,

LIFETIME WARRANTY!

Regular BASF Price List:

5.25 Diskettes:	Qty. 20-40:	Qty. 50+:	(BULK) 150+:
SSDD (P/N3406)	.81	.79	.72 *
DSDD (P/N3407)	.92	.90	.83 **
SSDD96 (P/N3404)	.92	.90	N/A
DSDD96 (P/N3405)	1.03	1.01	N/A
DSDDHD (P/N3403)	2.07	2.04	N/A

* Bulk is (P/N3408) **Bulk is (P/N3409)

Regular (non-bulk) product is packed 10 to a box with Tyvec sleeves, user-ID labels and write-protect tabs. **BULK** product is in cartons of 150 diskettes with Tyvec sleeves.

3.50 Diskettes:	Qty. 20-40:	Qty. 50+:	(BULK) 200+:
SSDD (P/N3402)	1.53	1.48	1.52
DSDD (P/N3412)	2.06	2.01	2.05

BASF 3.5" diskettes, exept for bulk, are packed in boxes of 10 and include user-ID labels. BASF bulk productt is in boxes of 100and includes user-ID labels.

PRINTER RIBBONS!

Brand new ribbons to factory specs!

EPSON MX-70/80(P/N2500)	$ 2.70ea.
EPSON MX-100(P/N2501)	$ 4.08ea.
Okidata Micro83(P/N2505)	$ 1.37ea.
Okidata Micro84(P/N2502)	$ 2.98ea.

Add 25¢ per ribbon for shipping!

STORAGE CASES!

DISKMINDER II(P/N2850) Holds 75 5.25" diskettes with dividers. $ 9.69ea + $ 2.00 Shpng.
DISK MINDER 36(P/N2950) Holds 36 3.50" disk ettes with dividers. $ 6.49ea + $ 2.00 Shpng.
DISK CADDIES(P/N2200) Beige. Holds 10 diskettes. $ 1.65 ea. + .20 Shpng.

HOW TO ORDER:

ORDERS ONLY:
1-800-621-6827
(In Illinois: 1-312-256-7140)
INQUIRIES:
1-312-256-7140

FOR FASTEST SERVICE, USE NO -COST MCI MAIL. Our address is DISKORDER. It's a FREE ,MCI MAIL letter. No charge to you. (Situation permitting, we'll ship these orders in 24 hours or less.)

SHIPPING: 5.25" & 3.50" DISKETTES-Add $ 3.00 per each 100 or fewer diskettes. **OTHER ITEMS:** Add shipping charges as shown in addition to other shipping charges. **PAYMENT:** VISA, MASTERCARD and Prepaid orders accepted. **COD ORDERS:** Add $ 5.00 special handling charge. **APO, FPO, AK, HI & PR ORDERS:** Include shipping charges as shown and additional 5% of total order amount to cover PAL and insurance. We ship only to United States addresses, except as shown above. **TAXES:** Illinois residents add 7% sales tax.

MINIMUM ORDER: $ 35.00

DISK WORLD!, Inc.
629 Green Bay Rd.• Wilmette IL 60091

DISK WORLD!, Inc.

An extraordinary value for readers of Computer Shopper!

You can buy Super Star™ diskettes at the 1,000 piece price ...but only buy 100.

50¢ <= SSDD
DSDD => 56¢

You save more than 10%!

Super Star™ diskettes equal or *exceed* the quality standards of "famous" brand diskettes like 3M, Maxell, TDK... at half the price or *less* and we want you to see it for yourself!

COMPUTER SHOPPER readers are among our favorite customers.

They are among the most sophisticated buyers we have. They know their products, understand the meaning of quality, are highly price conscious and won't be fooled...at least not more than once.

A compliment repaid...

Because **COMPUTER SHOPPER** readers are among the most mail-order oriented computerists to be found, we are making a special offer on our **Super Star™** diskettes for this one issue only.

You can buy Super Star™ diskettes at the 1,000 piece price in lots of 100!

Super Star™ diskettes are a great buy at their regular price.

But we want to make you an offer you can't refuse.

Because we want to show you that **Super Star™** diskettes are equal to or better than the so-called "famous name" brands at half the price or less.

And we also want you to see that **Super Star™** diskettes are clearly superior to a lot of the "junk" diskettes you see offered at 39¢ or 33¢ in lots of 10,000 and other ridiculous offers like that.

You deserve the best at the lowest prices with the least risk!

So, this special offer for **COMPUTER SHOPPER** readers: order 100 of our **Super Star™** diskettes at the 1,000 piece price.

Try them. We think you'll like them.

If you don't, just return them for a full refund.

Obviously, we feel that you're going to find what thousands of others have already learned: **Super Star™ diskettes offer more for less money!**

DISK WORLD!, Inc.

This special offer valid for this issue only!

TeleCAT-286 Compact Personal Computer

TeleCAT-286 Computer

TeleVideo Systems, Inc., introduced at Comdex the TeleVideo TeleCAT-286 compact, AT compatible computer. The TeleCAT-286 is targeted at the "power user" who is looking for greater performance in software processing speed, memory and storage capacity, and disk I/O operation, but is also limited in the amount of space available to accommodate his computer.

The footprint of the TeleCAT-286 measures 16-by-16.5 inches, 28% smaller than the IBM PC/AT. It is designed with the advanced 8-MHz Intel 80286 microprocessor which executes fast spreadsheet calculations and database searches. The TeleCAT-286 is also switchable to run at 6 MHz. Besides being compatible with IBM AT software, the TeleCAT-286 is fully functional with PC/XT and AT expansion boards.

The TeleCAT-286 is a complete systems package that accommodates an open architecture design providing for growth opportunities. It comes standard with 512Kbytes RAM (expandable to 1Mbyte on board), 1.2Mbyte diskette drive, a formatted 20-or optional 30Mbyte Winchester drive, keyboard, RS-232C serial port, parallel printer port, clock/calendar with battery backup, and five I/O bus expansion slots.

The system also includes a 14-inch monochrome, high-resolution, non-glare monitor with full tilt-and-swivel. The monitor displays 80 columns and 25 lines with a wide variety of visual attributes, and features 32Kbytes of video RAM. A single graphics controller supports both alphanumeric text and graphics. Sharp text resolution is obtained from the 7x9 dot character formed in an 8x16 character cell. Standard AT-compatible graphics applications written for 640x200 pixel resolution are supported, as well as those applications that support enhanced 640x400 bit map graphics.

The TeleCAT-286 is suited as a high-powered professional productivity system. The advanced disk controller is designed with advanced double buffering which eliminates sector interleaving to speed up disk file transfers. An entire track of data transfers with only one disk revolution. That is three times faster than the IBM PC/AT.

The TeleCAT-286 can be readily connected to a TeleVideo Personal Mini network file server, or any other popular PC network. The Personal Mini and PM/NetWare network operating system give AT-, PC-, and XT- compatible system's access to file and peripheral sharing, print spooking, electronic mail, mainframe communications and a large library of multi-user applications.

Microsoft's MSDOS 3.1 is available for the TeleCAT-286. GW-BASIC 3.1 is also included in this software package.

The TeleCAT-286 is available for shipment immediately and is list priced at $2,995 for the 20Mbyte drive.

Features

- 28% smaller than IBM
- 8-MHz Intel 80286 processor
- 512Kbytes RAM
- Sockets for 1Mbyte on-board RAM
- Five expansion I/O slots
- 20- or optional 30Mbyte fixed disk drive
- Serial and parallel ports
- Connects to Personal Mini network file server
- MSDOS 3.1
- Clock/calendar with battery backup
- High resolution video monitor

For more information, contact TeleVideo Systems, Inc., 1170 Morse Avenue, Sunnyvale, California 94086; (408) 745-7760.

Mention that you read about it in *Computer Shopper*. ●

★ NEW!! DISK DRIVE MANUALS $1,000 CONTEST!!! ★

NEW!! DISK SERVICE MANUAL II

Disk drives MUST be periodically cleaned and lubricated, and repaired as needed. Malfunctions can be devastating in lost programs, data and text; loss of business; upset customers; down time. YOU can maintain, troubleshoot, and repair drives WITHOUT EXPENSIVE OR DELICATE EQUIPMENT OR DIAGNOSTIC SOFTWARE - often in situ and in less time than it takes you to remove, pack, ship, receive, unpack, re-install, re-configure, and retest drives sent to drive repair shops!! Shipping drives is risky! If you want the job done right, on time, and at minimal expense - DO IT YOURSELF! OVER 100 LABELED PHOTOS AND ILLUSTRATIONS OF STANDARD-BUS 5.25", 8" AND MICROFLOPPY DRIVES, AND SPECIAL DRIVES (APPLE, COMMODORE, SONY)!!:

Chapter I: GENERAL. Chapter II: OPERATION ADVICE & TIPS. Chapter III: ERROR MESSAGES (and what they mean). Chapter IV: DIAGNOSTICS & TROUBLESHOOTING (how-to, step-by-step). Chapter V: MAINTENANCE. Chapter VI: SPEED ADJUSTMENT. Chapter VII: R-W HEAD ALIGNMENT (includes hysteresis and eccentricity). Chapter VIII: ELECTRONICS & REPAIRS (includes correct power/ground system wiring). Chapter IX: MISCELLANEOUS REPAIRS (T00 Sensor, T00 End Stop, Sector Index, Write-Protect, Head Loader, Compliance, Cone Assembly, Spindle Assembly, Module Assembly, Logic Boards, Spindle Motor, Door). Chapter X: DRIVE TEST STATION (professional shop plans). Chapter XI: REPAIR SHOP TECHNIQUES. Chapter XII: DRIVE ANALYSIS SOFTWARE CRITIQUE. Chapter XIII: DRIVE MODIFICATIONS. Appendix A: GLOSSARY. ONLY $22 (#1).

NEW!! DISK DRIVE TUTORIAL II

The detailed theory and practical facts of floppy drives, diskettes, FDCs, interfacing, formatting, and disk-stored software. A must for the Student, Programmer, and Computer Shopper (save $$$$)! Relates to drives of every manufacture, and used in IBM, APPLE, TANDY, COMMODORE, KAYPRO, TI, HP, NORTH STAR, ATARI, DEC, etc. systems. DOZENS OF LABELED PHOTOS AND ILLUSTRATIONS:

Chapter I: GENERAL. Chapter II: DISK DRIVES. Chapter III: DISKETTES. Chapter IV: INTERFACING. Chapter V: FORMATTING. Chapter VI: SOFTWARE (compatibility and protection). Chapter VII: RECOMMENDATIONS. Appendix A: ADDRESSES. Appendix B: GLOSSARY. ONLY $17 (#2).

SUPER RE-INKING METHOD

New printer/typewriter cartridge ribbons are costly, and yet may produce less than 5 hours of quality copy! And are an inconvenience to order - WHEN YOU CAN FIND THEM! Now, you can re-ink your own cloth ribbons to last about 10 hours of quality use for about 50 cents and 10 minutes of effort per ribbon. Not any ink will do! We developed the right combination of clay-free ink and carrier - both commonly and inexpensively available from stores in black and 4 colors. Includes complete plans for your own el cheapo motor-driven re-inker. Completely described and illustrated. STOP WASTING MONEY ON RIBBONS!! ONLY $7 (#3).

SELECTRIC RIBBON CONVERSIONS

SELECTRIC II ribbons are used in: IBM, Juki, Kaypro, Monroe, Olympia, Redactron, Remington, Remstar, Royal, Savin, Silver Reed, Sperry, Televideo, Transaction, WANG and XEROX equipment. The most popular SELECTRIC II ribbons are two Single-Strike (SS) types, and the TechIII Multi-Strike (MS). SS ribbons produce 150K chars. - MS, a whopping 580K chars.! A subtle difference causes each SS ribbon strike to advance greater than one char., while each MS ribbon strike about 1/2 char..

MS ribbons can be 4+ times costlier than SS ribbons!! A simple, commonly available 45-cent part can modify your SS ribbons to type MS (on MS-compatible equipment). This part is easily removed for real MS ribbon use, and reused indefinitely. Save $$$$ - plus much ribbon-changing/ordering aggravation! Completely described, with photos, plus much other information on ribbons, including invaluable sources of inexpensive, quality ribbons and other office supplies. ONLY $5. (#4).

Consumertronics Co. 2011 CRESCENT DR., P. O. DRAWER 537, ALAMOGORDO, NM 88310

ABSOLUTE COMPUTER SECURITY

Computer crime is rampant and increasing! Annual losses are $ Billions - plus devastating losses in privacy, security, etc.! DON'T BE VULNERABLE! We developed many versatile, simple-to-apply, virtually impossible-to-defeat, computer security techniques. These include, but go far beyond, passwords and ciphers. No hardware or ROM mods. required. ABSOLUTE COMPUTER SECURITY does NOT compromise any system using its techniques because of the almost infinite variations on how they can be applied.

Included are INVULNERABLE Microsoft BASIC cipher algorithms (encryption and decryption); BASIC program for computing, testing multikeys; cipher program design techniques; how to use zaps to protect disk files from unauthorized access; clever concealment techniques; secure operations procedures; review of security books - more! None of our ciphers are "public key," DES, or "One-Time Pad" methods (several keys are possible, no single key exceeds 50 chars.).

OUR CIPHERS CANNOT BE BROKEN BY ANYONE - NOT EVEN WITH A SUPERCOMPUTER!! WE WILL AWARD $1,000 IN CASH TO THE FIRST CONTESTANT IN OUR $1,000 CONTEST WHO CORRECTLY SOLVES OUR 25,000+ CHAR. CIPHERTEXT!! Included are details, contest rules, and many hints. To date, no one has decrypted our ciphertext - tho' many have tried! Not convinced? Then show us your stuff! WE EAGERLY AWAIT YOUR CHALLENGE!!

Publication: ONLY $25 (#5). Plus 5" IBM-PC diskette with 25,000+ char. ASCII ciphertext and programs: ONLY $50 (#6). Perfect with CRYPTANALYSIS TECHNIQUES and COMPUTER PHREAKING.

CRYPTANALYSIS TECHNIQUES

CRYPTANALYSIS is not only a fun, fascinating and challenging science and art, but an important skill in some professions. CRYPTANALYSIS TECHNIQUES lists and describes five complete Microsoft BASIC analysis Programs:

● CRYPANL1: 1-gram, Index of Coincidence (IC) and Measure of Roughness (MR) Analyses. Salient features permit total analysis of every N char. set with an M Offset (where M<N) to verify suspected key lengths - makes analyzing poly-alphabetic substitution ciphers a breeze! Shell-Sort of 1-grams.

● CRYPANL2: 2-gram Analysis. ● CRYPANL3: 3-gram Analysis.

● CRYPKAS: KASISKI Analysis. Salient features include appending any number of follow-on chars. to each n-gram Find to reveal larger n-grams; and the factoring of each Find displacement value into its primes to quickly reveal common primes, thus key lengths. Optional Shell-Sort of n-gram Finds.

● PRIMES: Generates up-to 1,000,000 primes for use here, with "public key" ciphers, etc.

Each program is completely described with sample results and attack methods. A detailed, completely worked out example is given. Completely labeled printed results. Although no known method of attack will decrypt our $1,000 Ciphertext (see above), these powerful programs provide added clues. Not only powerful tools to decrypt the ciphers of others, they can also test the strength of YOUR CIPHERS. And they can be used to develop data compression methods - increase data entry sizes and memory storage efficiency! Tables include detailed 1-, 2- and 3-gram statistics of typical text. Includes reviews of cryptanalysis books.

Publication: ONLY $25 (#7). Plus 5" IBM-PC diskette with Programs: ONLY $40 (#8). Perfect with ABSOLUTE COMPUTER SECURITY and COMPUTER PHREAKING.

COMPUTER PHREAKING!

According to the FBI, less than 5% of all DISCOVERED computer crimes result in conviction! Computer crime, or "Phreaking" costs $ Billions per year, and is clearly one of the most dangerous - yet most profitable and least risky - of all crimes! COMPUTER PHREAKING describes in detail:

● Dozens of computer crime methods. Schemes include: Input Transaction Manipulation, File Alteration and Substitution, Unauthorized Software Modification, Code Busting, Wiretapping, Electronic Trespass, etc. Plus many actual examples, and a detailed case history based upon actual court records of a major group! Why and how Government, business and financial institutions are easily victimized by savvy Phreaks!

● Numerous countermeasure, protection and security schemes - passwords to public key encryption methods. State-of-the-art techniques. Foil even the sharpest Phreaks!

● Definitions of popular computer crime terms, including PIRACY, TROJAN HORSE, LOGIC BOMB, TRAPDOOR, GODFATHER, MUTANT, ZOMBIE, BODY SNATCHER, SILENT ALARM, CHEESEBOX, CANDYMAN, CODE 10, etc.

● Thorough analysis of why computer crimes are the least risky and most profitable of all crimes.

Learn how to become a computer crime fighter! Comprehensive, illustrated, frank. ONLY $15 (#9).

STOCKPRO II

Effective, yet unique and unconventional methods to select common stocks! Dozens of applications reveal that stocks chosen by STOCKPRO II subsequently increased in value by an average of 31% to 211% per year!! Use STOCKPRO II's shrewed statistical and intuitive methods to profit in Bull or Bear markets. Completely described and illustrated. Program is in Microsoft BASIC. Publication: ONLY $15 (#10). Plus 5" IBM-PC diskette with Program: ONLY $30 (#11).

VORTEX GENERATOR

Cool or heat with a simple three-port device. One port is used for ambient air input. The second port discharges air colder than -50 deg. F; the third discharges air hotter than +130 deg. F! NO MOVING PARTS! NO FOSSIL FUEL OR ELECTRICITY REQUIRED! NO LIQUIDS OR FREON USED!! Incredible, fascinating, exciting, and little understood principle completely described and illustrated (with photos). Simple design. Guaranteed scientifically sound! ONLY $9 (#12).

NEW!! PRINTER & PLOTTER MANUAL II

Printers and plotters are costly, with little relationship between cost, quality and capability! PRINTER & PLOTTER MANUAL II describes:

● NEW!!: 100+ printer/computer connections described and illustrated (parallel and serial), including switch settings.

● NEW!!: Much greater descriptions and schematics on BUFFER, SERIAL-TO-PARALLEL, PARALLEL-TO-SERIAL, and X-SWITCHER INTERFACES!

● The physical specifications, features, and control codes of popular printers and plotters.

● Printer and plotter interfacing, problem areas and how to correct them. Some are hard to interface. Most can be memory-upgraded to save YOU much time and expense.

● Many cost-saving tips and recommendations in the purchase and operation of printers and plotters.

● Circuit diagrams of X-SWITCHERS. Independently switch one/two printers or plotters to one/two computers without disconnecting either. Schematics of Centronics Parallel, RS-232C and 20 ma Current Loop.

● Additional sections devoted to PRINTER TYPES, PLOTTER TYPES, EXPANDING MEMORY, INTERFACING, ELECTRONIC TYPEWRITERS, RIBBON RE-INKING SECRETS, PAPER, PATCHING SOFTWARE, SPEED RATINGS, BUYING STRATEGY, and RS-232C PROTOCOLS.

● BUFFERS, SPOOLERS, MEMORY UPGRADES, ELECTROGRAPHIC, TRACTOR-FEED, DIP AND PANEL SWITCHES, DOT-MATRIX, DAISYWHEEL, INK JET, LASER, FLAT-BED, ROLLER-BED, DRUM, WORDPROCESSING, DATAPROCESSING, CAD/CAM, TIME-OUT PROBLEM, GRAPHICS TABLET, CALLIGRAPHY, PS TYPESETTING, ADVERTISING, PUBLICATION LAYOUTS, etc.

● Over 100 printer- and plotter- related terms defined, including abbreviations, control codes, and interface terms.

● Cleaning, lubricating, maintaining, and repairing printers and plotters, with actual examples.

Comprehensive and exhaustive - many illustrations and photographs: ONLY $20 (#13). Perfect with SUPER RE-INKING METHOD and SELECTRIC RIBBON CONVERSIONS.

MUSIC TO YOUR EARS!! By John Williams, Electronics Engineer, former Computer Science professor, N.M.S.U. Please add $2 for ship./hndl. Please allow 4 weeks for check-paid orders, else 2-3 weeks. SUBSTANTIAL QUANTITY DISCOUNTS!! Customized editions for quantity orders! PLEASE ORDER TODAY! FREE SUPER-SURVIVAL CATALOG (80 publications) for all orders over $20 (else $1).

#1☐ #2☐ #3☐ #4☐

Name

#5☐ #6☐ #7☐ #8☐ #9☐

Address

#10☐ #11☐ #12☐ #13☐

Total Selections: $

City State Zip

Consumertronics Co. 2011 CRESCENT DR., P. O. DRIVE 537, ALAMOGORDO, NM 88310

HaloScan Will Be Released At NCGA

Media Cybernetics released its latest integrated graphics and imaging software product, HaloScan, at the NCGA's Computer Graphics '86 exposition in Anaheim, CA.

HaloScan software enables users to capture printed documents with their scanner and then enhance and edit the document on their PC, with the full functionality of a WYSIWYG (What You See Is What You Get) interactive page format.

Once scanned into the PC, documents may be manipulated in a full virtual page, mode enabling ASCII text and graphics to be merged for complete desktop publishing capabilities.

HaloScan gives users access to a full range of desktop publishing options with its support for scanners manufactured by CompuScan, SpectraFax and others.

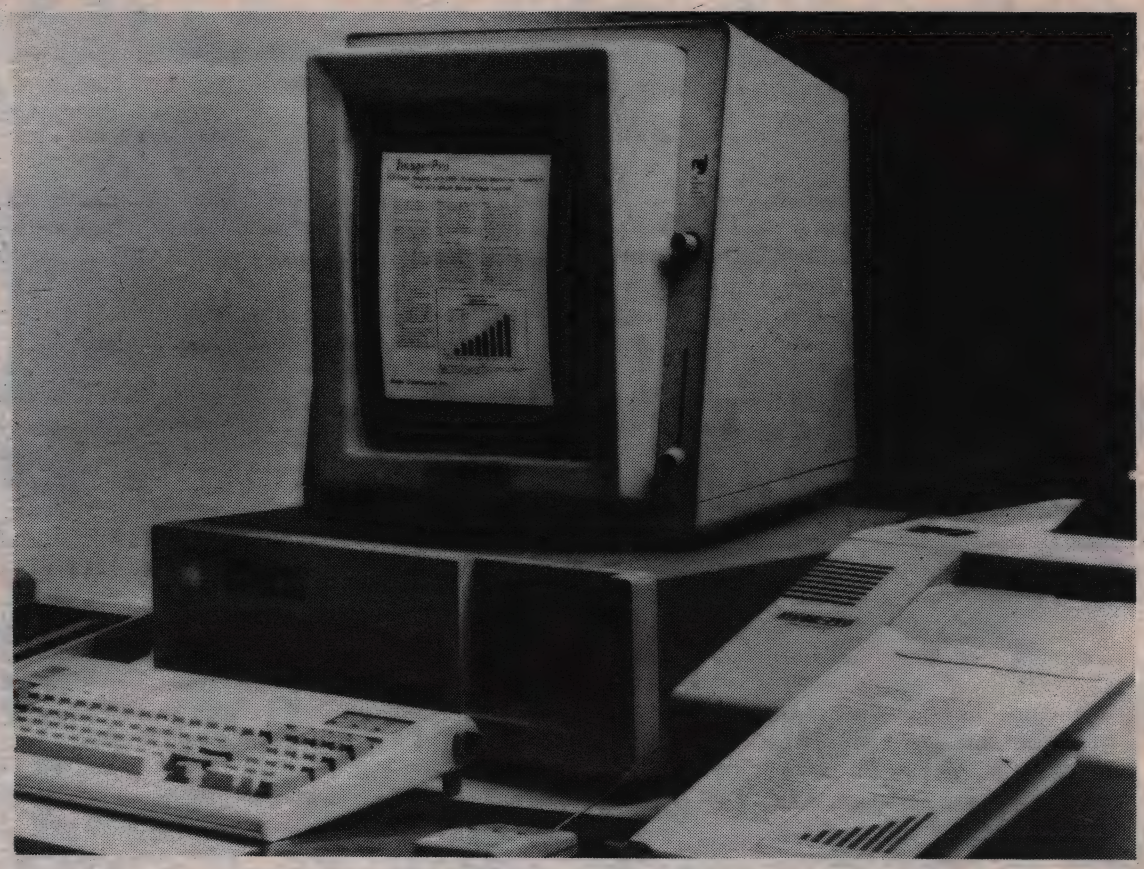
HaloScan offers:

- Icon-driven ease of use
- WYSIWYG (What You See Is What You Get) operation
- Compatibility with all popular WP formats
- Over twenty proportionally spaced fonts
- Image and text merge
- Direct support for all LOTUS/Intel EMS standard extended memory boards for full resolution image acquisition, editing and hardcopy
- Laser printer support
- Cut and paste from page or disk
- Image compression
- Image scaling and rotation
- Document pan, scroll and zoom
- Compatibility with over 90 graphics displays, mice, and printers
- Access to HALO, a complete software development environment for OEM and custom applications

HaloScan retails for $495.00 to end users. OEM, VAR and site licensing agreements are also available.

HaloScan is written with HALO, the defacto standard for graphics. HALO provides OEMs and VARs with a full function library of graphics subroutines and a complete software development environment in support of custom scanner applications.

HALO provides compatibility with fourteen programming languages and over ninety graphics devices for software development and value added system configuration.



HaloScan Imaging System

Media Cybernetics is currently expanding its support of document scanning devices, manufacturers of scanners are encouraged to call for details on device drivers for their products.

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PC Picks And Pans Two New Archive Utilities

by Charles Miller

If you are a regular user of bulletin board systems (BBS) or swap User Supported or Public Domain software you have probably seen programs or files stored in an archival format. These files are usually named with a .ARC file name extension and have been compressed and may have been assembled into a collection — i.e. archive — of related files. Lately, more and more files have appeared on bulletin boards in this form to save space on the bulletin boards disks and to speed up file transfer via modem. As the volume of public domain software grows, a greater percentage of the programs on the BBS's will probably be archived.

Archives have an advantage over squeezed programs in that the program, documentation and other associated files are assembled into a single package, enabling the receiving user to get everything needed in a single download.

In order to use an archived program, the end user needs to extract and de-compress the programs in order to use them. This requires a program designed to extract the files from the archive and restore them to their original form. Two new utilities have been recently released on BBS's across the country and are reviewed here.

ARC 5.1

ARC 5.1 produced by System Enhancement Associates is the latest version of their archiving program created about a year ago. Those familiar with earlier releases of ARC will find much improved documentation and a few new features, including support for DOS path names and file names, making the program much easier to use.

This program is a full featured archiving utility. It will not only extract archived files, it will run or print them. And ARC also allows the user to create archives, add files to archives and merge files between archives. With this ability, a user can create archives for uploading to a remote system, or to save a large volume of data in limited disk space.

To create, review or extract files from an archive, the user enters command line parameters at the time of program execution specifying the program function, file names, and path. The program selects the best method for compressing the file from four options: No Compression, storing the file as is in the archive; Repeated Character Compression, repeated sequences of identical bytes are compressed to a three-byte sequence; Huffman Squeezing, where the file is compressed into variable length bit strings; and Lempel-Zev Compression, storing the file as a series of variable size bit codes created "on the fly." The user need not know anything about how these compression schemes work or even which one should be used for a particular application, ARC analyzes each file before it compresses it and automatically uses the best method.

A "verbose" listing of an archive created by ARC 5.1 illustrates the amount of compression achieved by using this program:

Name	Length	Stowage	SF	Size now	Date	Time	CRC
U-FILE.EXE	62592	Squeezed	15%	53615	5 Feb 84	2:44p	5E0B
U-FORMAT.EXE	38656	Squeezed	13%	33636	28 Jan 84	8:00p	0CF1
U-ZAP.EXE	62720	Squeezed	15%	53712	29 Jan 84	4:50p	DB05
ULTRAS.DOC	75783	Crunched	61%	29928	11 May 84	9:52p	7977
Total 4	239715		29%	170891			

TABLE 1

continued on page 103

Datavue-25
continued from page 53

with the IR keyboard and LCD display unfolded make it somewhat clumsier to use than some flat briefcase lap portables. You may want a bit more desk or table space than you sometimes get on an airliner lap-table, for example. Having a regular 5 ¼" disk drive instead of the smaller 3½" size will be a real advantage to many users who have another PC-compatible machine at home or at the office that also uses 5 ¼" drives; 3½" drives are available as an option. The stock single disk drive, on the rear right side of the machine, is set up so you insert the disk with the label facing the REAR of the machine, slightly counter-intuitive for the beginning user.

Other trivial complaints include the "beep" tone provided instead of the more common "click" for keyboard feedback, and the fact that a longer keyboard cord might be desirable for lap typing while traveling, where the IR keyboard link may not be practical.

Paradoxically, the main limitation of this computer, as well as its strongest feature, is the LCD display. The full page 25x80 panel is highly IBM compatible and probably better than many other LCD displays, (much better than one on a Data General machine I saw demonstrated, for example) but I found it rather tricky to get a correct viewing angle, even with the tilt-out panel. The various

continued on page 100

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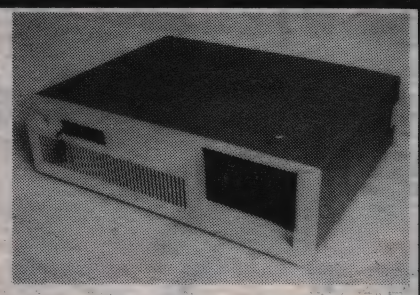

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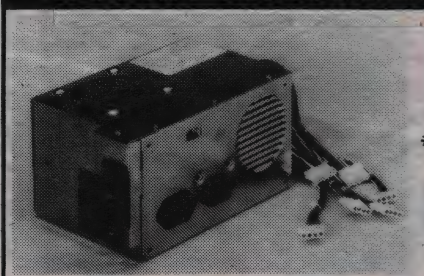

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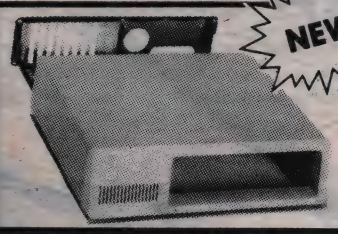

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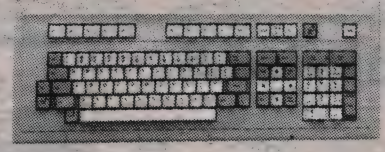

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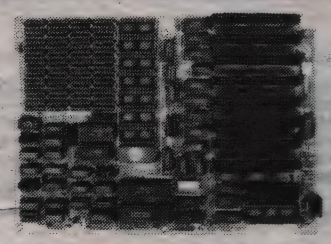

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Industrial Computer Corp. Announces Quality Control Software

Industrial Corporation introduces Statistical Process Control, a program useful for companies interested in quality control software in their factory, lab or inspection area. It can be used with direct gage data input to the computer or data can be typed in directly from the keyboard. It is menu and command driven for ease of use and immediate feedback of results. Accuracy is up to seven signficant digits. Results are rounded rather than truncated. The SPC Program displays each number in the set of data. It displays the Low and High reading with the calculated Range and Mean of that set. It takes the data from all sets in the group and calculates the Average Mean, Average Range, Upper and Lower Control Limit for the X-Bar Chart, Upper and Lower Control Limit for the Range Chart, and the Standard Deviation. This is then displayed on the bottom of the screen. The program then draws and displays the X-BAR Chart and the Range Chart showing the Mean and Range of each set along with its corresponding Upper and Lower Control Limits.

Any unit of measurement and characteristic can be used with the program, i.e. length, diameter, force, weight, etc. in units of inches, meters, grams, pounds per square inch etc.

Time, day, month, and year are continuously displayed on the analysis screen.

Help windows are displayed in the center of the screen when you need the help. They are then removed and the screen is returned to its previous display. This program is built around the FORD SPC Program. An input mask and traps reduce keystroke errors and much more!

This program is available for the IBM PC, Apple II, Apple IIe, Commodore C128, C64, AT&T 6300 computers. The suggested price is $165.00.

For additional information contact Industrial Computer Corp., 261 Main Street, Torrington, CT 06790; (203) 496-1111.

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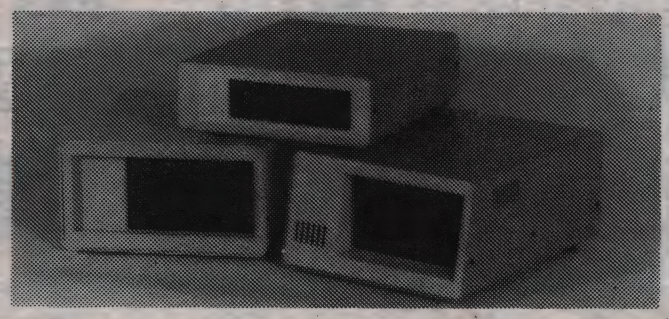

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Datavue-25 continued from page 98

keyboard-command adjustments for density and contrast do help, but even at the optimum setting, the display was moderately difficult to read. The optional fluorescent back-lit panels on the newer machines are a highly desirable option for serious users. If I had to use the regular LCD panel for hours and hours of serious writing and business calculations instead of just casual note-taking, I'd want a good-size desk with plenty of room to adjust the relative positions of the keyboard and display, and an adjustable angle, high-intensity desk or reading lamp. In a pinch, the adjustable overhead reading lights on trains and airliners help a lot. (Quadram does have a program that allows early Datavue-25 owners to upgrade their machines. A new backlit LCD panel can be added for about $225, exchange, for example.)

In conclusion, the Datavue-25 series machines are a serious contender for users like journalists, tech writers, engineers, CPAs and those MIS professionals who demand a high level of convenience and IBM compatibility in an MS-DOS business portable, and are willing to pay for it. List prices run from a suggested $1695 for a machine similar to the one I used, up to nearly four grand for a loaded machine with 1.2 Meg of RAM, a 20 Meg hard disk, and an amber gas display, somewhat on the stiff side for the casual hobbyist or reporter who just needs to type a few notes. There is considerable competition and downward pressure on prices for these machines with the IBM Convertible PC and Zenith 2-171 on the high end, and the cheaper CP/M portables like the Bondwell on the low end, for portable users who don't need the IBM compatibility.

The Quadram Datavue-25 family at a glance:

CPU: 80C88 (CMOS equivalent of 8088) at 4.77 MHz.

RAM: From 256K minimum to 1.2MB.

ROM: Minimum 16K. Additional custom ROM and 8087 math co-processor can be special ordered on expanded machines.

DISK I/O: minimum of one 5 ¼" disk drive, plus adjustable RAM disk partition. A wide selection of additional 5 ¼", 3½", and hard disk drives is available.

Display: 25x80 high resolution LCD standard; Fluorescent backlit LCD or amber gas display optional.

I/O: Parallel (DB-25), Serial, RGB, and composite ports standard. Options include modem, bus expansion chassis, external drives, etc.

Power: AC supply: 120VAC at approximately 54 watts. 12VDC: 2.1A MAX.

Size: 12 ¾"x6 ¼"x10½".

Weight: Approximately 12-16 pounds, depending on options.

Price: 9 models, suggested retail list from $1695 to $3995.

Manufacturer: Quadram One/Meca Way, Norcross, GA 30093; (404) 923-6666. ●

Canon Introduces New Personal Computer

Canon A200II Computer

Canon USA, Inc., Lake Success, N.Y., is enhancing its personal computer line with a second generation of personal computers, the A-200II Series.

The A-200II Floppy Disk Model will be available in June 1986 for a suggested retail price of $1,995 and will include a monochrome version of CRT, 256 Kbyte standard memory, to 5¼" floppy disk drives, Centronics-type parallel interface, serial data interface, six expansion slots and a standard PC-compatible keyboard. The A-200II Hard Disk Model will be available in July 1986 for a suggested retail price of $3,595 and includes the same specifications as the Floppy Disk Model but will have one 5¼" floppy disk drive and one 20M-byte hard disk drive.

The A-200II is compatible with the IBM PC and has a variety of features for fast speed and greater storage capacity.

The A-200II utilizes a 8086 16-bit microprocessor but Canon has added an extra feature: a choice of CPU process clock rates. Either the standard 4.77MHz for normal usage, or an ultra-fast 7.16MHz for high speed data processing which can be selected with the turn of a switch or by the software. The memory has 256 Kbyte standard capacity but can be expanded up to 640 Kbyte for heavy-duty operations.

The A-200II is available with a choice of either a color/graphic monitor or monochrome monitor. As might be expected from Canon's manufacturing expertise, the monitors feature highly legible screens that can be tilted or swiveled for easy viewing at any angle. Canon will also offer a dual mode CRT adapter which can work with both the color/graphic or monochrome monitors. The CRT adapter provides high resolution in mono-graphics.

In developing the A-200II, Canon considered the requirements of different operators and the result is a choice of two different keyboards.

A standard keyboard has the traditional layout, while a second keyboard is designed for word processing which can be used with the Canon word processing program, CanoWriter II plus. A mouse can be connected directly to either of the keyboards, without an extra card.

The floppy disk model has two 5¼" floppy disk drives (360 K-byte X 2). The hard disk model has one floppy disk drive and one built-in hard disk drive (360 Kbyte + 20 M-byte) for the convenience of massive storage without changing disks.

With built-in parallel and serial interface ports, the A-200II also has six PC-compatible expansion slots for expanding the system. For high speed processing, three of the six slots are 16-bit data bus slots while the remaining three slots are 8-bit data bus slots.

A variety of software from various suppliers will work with the A-200II. In addition to MSDOS and GW-BASIC, CanoWriter II plus word processing software and Canon BASIC programming language software are available from Canon.

For further information, contact Canon USA, Systems Division, One Canon Plaza, Lake Success, NY 11042.

Mention that you read about it in *Computer Shopper*. ●

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Apple II+, IIe, IIc Atari (all models) Commodore 64,128 Timex 2068 TI99/4A	Apricorn graphic Xetec Graphix Xetec 8K SGX Aerco CP Axiom TI	$409	$255/$335	$329	$285/319	$329
Amiga, Atari 520, AT&T Compaq, IBM PC, Columbia, Kaypro, Osborne, RS, Sanyo	Cable	$359	$205/$285	$279	$235/269	$279
Print speed (cps): draft, NLQ		180,34	120,25	100,16	100,20/120,22	120,30
Printer buffer, warranty (month)		2K, 12	4K/1K,12/18	1K, 12	1K/1K,24	5K,12

CITIZEN

MSP-15 $359
- Draft/NLQ: 160/40 CPS
- Print Buffer: 1K expandable to 8K
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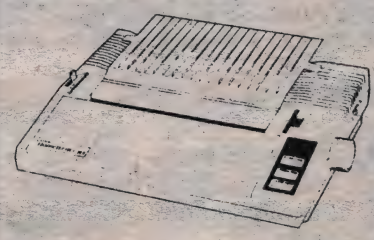

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PC Picks & Pans
continued from page 98

ARC 5.1 reduced the storage space required for all three of the Ultra Utilities Program and the manual by 29% using Huffman Squeezing for the .EXE files and an improved version of Lempel-Zev Compression which resulted in a significant savings of 61% on the .DOC file in ASCII format. The table shows the name of the original file, its size in bytes, the compression scheme used, the amount of compression achieved, its compressed size, the date for the original file and time and the CRC code used in making the Cyclic Redundancy Check during compression and decompression.

The savings in space are significant, especially for files compressed using the Limpel-Zev scheme. This space saving also results in a significant reduction in the time needed to transmit files via modem.

Despite the fact that the program uses DOS command lines for user input, it is fairly easy to use. This choice of user interface reflects the target audience for this program — that is programmers and advanced users. But a better user interface will enhance almost any program. Menus would be a help to the less-experienced and first time-users.

The program is useful despite its primitive user interface because it now includes adequate documentation. Version 5.1 of ARC came with expanded documentation which includes a table of contents but no index. All of the program's functions are explained and there are enough examples of command line entries to get the average user started. For this type of program, the documentation is above average, which is to say it's a lot less than is expected from a commercial program but it is a lot better than the skimpy information supplied with most public domain programs.

PKXARC 3.0

PKXARC is a archive extraction program produced by Phil Katz of Glendale, WI. The main function of PKXARC is to extract files from archives and it does this very well. It was able to extract files from archives created by ARC versions 4 and 5 without difficulty. Remarkably, it did so much faster than ARC and without error.

ARC 5.1 took about 92.5 seconds to extract ULTRAS.DOC from the archive referenced in table 1, while PKXARC took about 39 seconds. Phil Katz claims that PKXARC is from 3 to 8 times faster than ARC version 5, depending on the compression scheme used. No detailed explanation of how this was accomplished is offered in the documentation.

Unlike ARC, PKXARC does not create archive files. It will perform most of the extraction functions of ARC but will not decode files encrypted using the ARC Garble option.

Like ARC, PKXARC uses command line arguments for the user interface. Again, this is understandable given the intended audience but a more user-friendly interface would make the program easier to use and would expand its usefulness to the less than expert user. The command line entries are slightly more cryptic than ARC but still understandable once they have been used a few times.

Documentation is supplied with PKXARC. However, it is brief, running less than five pages, lacking any indexing or table of contents and includes only the basic operational information. But it is integrated with the program so that it is available on-line on the user's console. This makes it more useful than it would ordinarily be. Expanded documentation would be welcome, especially for novice users of the program. The use of the on-line documentation as a help feature is a great idea that

continued on page 108

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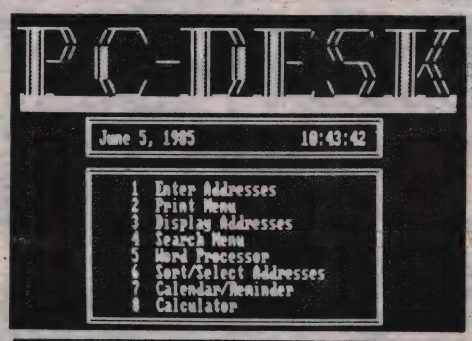

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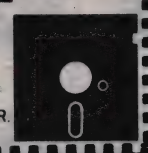

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Review Of The FAST88

by Bill McMurran

How would you like to out run a PC-AT with your IBM-PC? You can bolt on a couple of small devices for around $300 total that will do just that. We are talking about the FAST88. Used with 8Mhz CPU chips, either an Intel 8088-2 (furnished) or a NEC 70108D-8 (V-20), you can operate at speeds up to 7.4 Mhz. Add an 8087-2 co-processor and you can literally out number-crunch a 6 Mhz AT. What is this small miracle?

FAST88

The FAST88 is a speedup attachment that comes with dual crystal clocks, clock sync logic of course, and reset logic. The circuitry, neatly packaged, fits on a small L-shaped aluminum chassis about 2 inches by 2 inches. And it is light enough to mount securely on your PC case back wall with double sided mounting tape. It does not use any of your precious slots! To install, you remove the 8284A clock chip and plug in a cable from the FAST88. Then select your operating speed (choice of 6.1 Mhz, 6.7 Mhz, 7.4 Mhz). Plug in the small external control box. Choose your high speed CPU, install it, and you're in business.

Standard Clock

How does it work? In a standard PC the 8084A clock chip generates a 14.31818 Mhz output. The clock output divided by six produces PCLK. PCLK is a 2.3863633 Mhz signal which drives the 8253 counter timer and other TTL logic devices. Dividing clock output by three produces 4.7727263 Mhz used by the system CPU (CLK8088). A third output (OSC) is a buffered 14.31818 Mhz output used by expansion cards to generate on-card signals.

FAST88 Clocks

FAST88 generates two clocks. One provides a normal PCLK and OSC. The other is a selectable CLK8088. The net result is that you can use one of three speeds for CLK8088 while leaving the rest of the system unchanged. The benefit of two clocks is that you only speed up your CPU chip. You do not disturb critical timing circuits needed by other functions.

Operating Speeds

Three operating speeds are provided to match the FAST88 with the speed of the ROM and RAM installed in your PC. The low speed (6.1 Mhz) is for PCs with 250 nanosecond RAM and slow ROM. Mid-range speed (6.7 Mhz) will work well with 200 nanosecond RAM. The highest speed (7.4 Mhz) will probably require 150 nanosecond RAM according to Microspeed. My computer contains a mixture of 150 and 200 nanosecond RAM chips and works well at 7.4 Mhz.

Control Box

A small external control box plugs into the FAST88 chassis with a short length of quick detachable telephone cord. A rocker switch on the box changes between high speed and normal speed. It lets you format, diskcopy, and run any other programs that need it, at standard speed. A nice touch — the high speed position has a green LED to let you know when you are in high speed, there is also a hardware reset switch on this box and its use is selectable by jumpers on the FAST88 chassis. I really appreciate this feature since I quite often get totally locked up. Now having to turn the computer off just clear a lock-up bothers me. This is definitely a feature IBM forgot. I feel cold starts are much harder on parts than are warm reboots.

Installation Problems

If your PC is like mine, you won't have any difficulty in making the installation. I was fortunate. The 8024 clock chip was socketed so all I had to do was pop out the clock chip and plug the FAST88 cable in its place. I was also fortunate that the RAM chips were no slower than 200 nanoseconds. If your PC is not like mine, there may be just a few small problems. The biggest of these happens if you find the 8024 soldered to the PC mother board. You will have to remove the 8024 chip and install the 18 pin socket (furnished as part of the kit). There are clear instructions on how to do this in the user's manual, however they do recommend that the inexperienced get it done for them. Considering the cost of mother boards, that's good advice. It's also a good idea to replace any 250 nanosecond RAM chips with the 150 nanosecond variety.

Testing

Although not extensive, some tests were run to get the feel of the FAST88. For example I compared a PC equipped with a standard speed V-20 and a 8087 to one equipped with a FAST88 (high speed V-20 and a 8087-2). Running Microways' 8087 test program (a group of looped mathematical operations) indicated a FAST88 speedup of about 33%. It was probably greater but the time readout was limited to full seconds. Typically FAST88 was one second faster in each of the tests run.

Using Autocad to redraw a stored drawing of the Space Shuttle Columbia gave the following times:

IBM-PC with Microscience 10 megabit hard drive and 8087-30 sec.
IBM PC with Iomega drives and FAST88-Low speed-26 sec.
(both of these tests used an 8087-2)—High speed-22 sec.
IBM-PC AT 6 Mhz and 80287-22.6 sec.

These last times show the real advantage of the FAST88 for an IBM-PC or clone engineering work station. They can be upgraded to AT class performance for about $300. Doing so certainly makes economic sense. A point worth noting: the PC with Iomega drives and an 8087-2 is four seconds faster than the PC with the Microscience/8087. I think that the difference is mainly due to the much faster access time of the Iomega's since the CPUs were running at the same speed.

Final Impressions

This device is nearly bullet-proof. I booted up in the high speed mode with no trouble whatsoever. I switched between high and low speeds while scrolling Wordstar with no trouble. The hardware reset always worked whenever I locked up the computer. One quirk, it did not always produce a cold start reset. That is, repeat the memory check etc., as though you had turned off power and restarted. Occasionally it seemed that I had done a Ctrl-Alt-Del warm type reboot. A mystery to me, but the bottom line is that it always reset.

Would I buy it for my office machine? Without hesitation — the payback would come quickly in a professional office. Would I buy it for my home machine? Not at this time. I consider it overpriced for the hobby market although not by much. If the price dropped to below $100, I would certainly buy it.

FAST88

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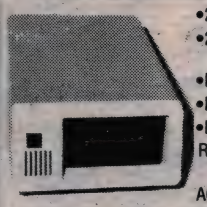

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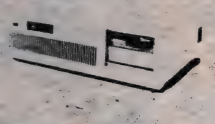

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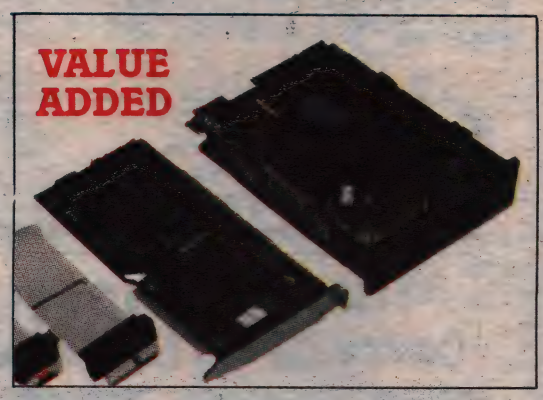

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New Bridge sCOREkeeper System

Bridge enthusiasts, and especially Bridge Directors, will be happy to hear that a complete duplicate bridge scoring system called sCOREkeeper is now available from Micro Specials of Eden Prairie, Minnesota. Designed for any IBM PC or compatible with 80 column display and 256K memory, the sCOREkeeper system provides a fast, easy and fun way to maintain duplicate bridge competition scores and much more.

Among other features, sCOREkeeper delivers multi-section scores, matchpoints, percentages, rankings and individual printed results for each participating team. It also generates random "computer hands" and keeps cumulative records of all duplicate session winners and ACBL awards. The system's strengths are its simple one-touch controls, its flexibility and the ease of information entry, review, correction and printout.

sCOREkeeper displays information in spreadsheet format. All possible functions are highlighted on the bottom two lines of the display screen. With a single keystroke, the user can perform functions such as switch between data displays, page across scoresheets or between sections, display overall scores of individual hand matchpoints, or print the current standings.

Up to 5 separate sections can be scored simultaneously with up to 19 tables per section. Options that can be done across multiple sections include matchpointing, calculating overall winners and obtaining overall scores scaled for different section averages. sCOREkeeper easily handles AVE, AVE – and AVE + scores as well as most Mitchell, Howell and Barometer bridge movements.

Information can be entered into sCOREkeeper from the pickup slips for each round and/or from the "travelers" at the end of the entire session. Raw scores are entered only once for either the north/south pairs or the east/west pairs. Partial scores are permitted and scores can be easily corrected for any round at any time. Results of overall standings and individual hands are simple to print and easy to read. All information, including ACBL award winners, is also saved on disk for future reference.

Using auxiliary programs, the sCOREkeeper system can also generate random "computer hands" and keep track of cumulative ACBL masterpoint winners. The random hand generator prints individual slips so each hand can be made up at the beginning of the match, and also hand summary sheets that can be given to all participants at the end of the competition. The record keeping program keeps track of ACBL award winners in up to 99 different categories.

The complete permanent system costs only $395, or a trial system can be purchased for just $25.

For more information contact Micro Specials, 9704 Mill Creek Dr., Eden Prairie, MN 55344.

Mention that you read about it in *Computer Shopper*. ●

PC Picks & Pans continued from page 103

should be imitated by others.

Conclusions

Both of these programs are very useful and, in some situations, necessary. If you download more software from BBS, or receive disks with archived files, you will need some kind of extraction program.

If all you need to do is extract files PKXARC will do everything you want to do and do it faster than ARC. You will have to get by with the sparse documentation which shouldn't be too difficult if you have some experience with this type of program and user interface. It really is best used as an adjunct to ARC for its superior extraction speed — too bad the command line entries are not identical.

To create, merge, modify and extract archives, you must have a program like ARC 5.1. If you have an older version, you will soon, if you haven't already, find archives that version 4 can't deal with. With its expanded user manual and new features, ARC 5.1 is a more useful program than its earlier incarnations. It really is a must if you both upload and download, or if you want to save space on your disks.

Since they are both User Supported Programs, it takes little extra effort to get both. They are worthwhile programs and will become an essential part of many utility libraries.

Program Producers

ARC 5.1. System Enhancement Associates, 21 New Street, Wayne, N.J. 07470.

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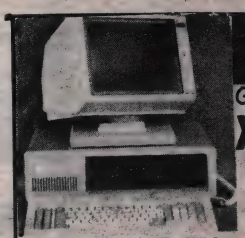

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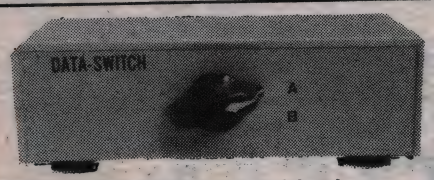

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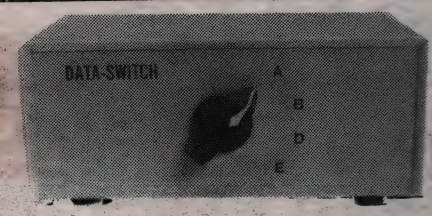

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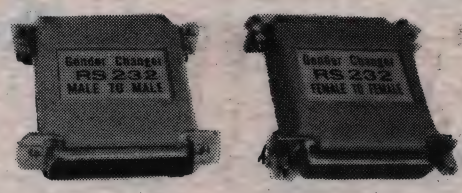

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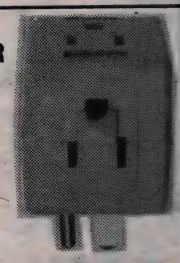

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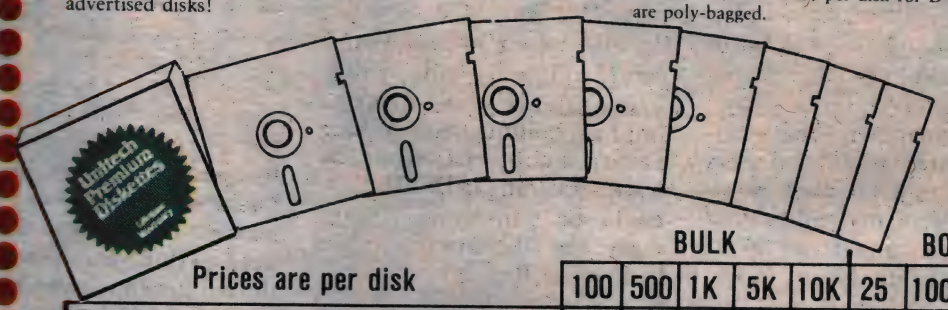

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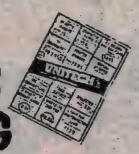

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Productivity Software for IBM & MSDOS

by Dr. Michael W. Ecker

When you write, do you find that there are so many phrases that you use over and over again? Do you sometimes wish you could just type "asap" and your computer would know that you meant "as soon as possible?" Would you like to be able to type just a few keystrokes and have "I look forward to hearing from you at your earliest convenience," appear?

Well, wish no longer! If you have an IBM PC, XT, or compatible computer, then such a product is available. It is PRD+, which itself is a kind of abbreviation for Productivity Plus. And that is a good name, for productivity is what this software is all about.

What is It?

Simply put, PRD+ is a memory-resident software program which allows you to use abbreviations in your keyboarding to save you from having to type out full words or phrases. Assume for the moment, that you've just loaded in the program (with an appropriate list of abbreviations). You can now work with a word processor or other program. From it, touch the ALT key and the ESCape key. You've now toggled on PRD+. You may type as usual, but whenever you want to type a phrase for which an abbreviation has been previously defined (either by you or provided with the program), you type the abbreviation.

What happens is that as you type "asap" those letters appear, but the moment you touch the space bar (to go on to the next word), the "asap" disappears and it is replaced — and quickly, I might add — by "as soon as possible." Type "gn" and "Gentlemen:" pops up in its place, and so on.

A Trade-Off

The advantage to this should be obvious, but there is a price you pay. You have to know the abbreviations! For, if you don't know them, then the time lost will offset any time gained.

Toward this end, I would recommend abbreviations which you devise yourself. Since PRD+ comes equipped with at least one big file of abbreviations, you can use that file, or you can create your own from scratch, adding right in the middle of other activities, or you can merge and purge to create a custom "data base" of words.

The ability to customize takes some of the edge off the learning process, for by allowing customization, Productivity Software has allowed users to begin to work with what users really want, rather than imposing a standard on them. Since it is relatively easy to add at any time, one need not feel obliged to do a list at one or two sittings, but rather can add comfortably as one goes along.

Observations

I reviewed this package on my Tandy 1000 (384K, two floppy drives) and found that the product performed exactly as advertised and described. First, I tried it from DOS, alternately invoking PRD+ and turning it off by the toggle of ALT and ESCape. Next, I used Volkswriter Deluxe 2.2, mostly because it was handy and I thought I saw that word processor listed. Again, no problems.

A few interesting things struck me. One was that, from DOS, with the program toggled on, typing CLS did not clear the screen but rather produced the word "calls" — using the word list provided on the disk. Imagine the damage I could have done, for instance, had there been an abbreviation with the word "erase" in it!

Now, let me just say that I consider it pretty unlikely that such a mistake would happen, but I am pointing out a pitfall: Don't use abbreviations which have a meaning in DOS which could be damaging. If you must, then be sure to toggle PRD+ off first.

A minor observation concerns typing errors. Let's say, as in the supplied word list, you want to type the abbreviation: LK2HR which means: I would like to hear from you at your earliest convenience (Readers: Note the lack of a period in the line above).

Suppose that you type, with PRD+ toggled on, LK2HT and then touch the space bar. Too late! You cannot go back and expect the abbreviation now to work as you type over the "T" with the "R" that you meant to have. (Upper vs. lower case is not really consequential here, by the way.)

However, experimentation shows that if you catch the error prior to touching the space bar, then the abbreviation will take effect.

It should be noted that there are many choices that you must make. For instance, do you want to have a space after the last word of the unabbreviated phrase? Using the same example of LK2HR, I found that I almost always wanted that to be the end of the sentence. So, to have a space after "convenience" in that phrase only created work for me as I now have to backspace a space and add the period. The point is that you need to think through what is the configuration you will use most frequently, what will save the most time, etc.

If you've read this far and this has sounded to you like keyboard macros, in a way you're right: there is a strong similarity.

The Package

PRD+ comes as a disk with binder and about a hundred or more pages of documentation. The manual is indexed for easy reference. There is the usual, somewhat forbidding-looking warning about piracy and the law, and no wonder: PRD+ sells for $195. This raises the chicken-and-egg question of which comes first, the high prices or the piracy. Personally, I found that this may be okay to charge a company, but many individuals will not want to fork over nearly two hundred dollars, as good as the program may be.

Don't get me wrong. This is a fine package, reasonably well thought out, with configurations for different systems, the customization option I mentioned earlier, the ability to add without having to go into

continued on page 112

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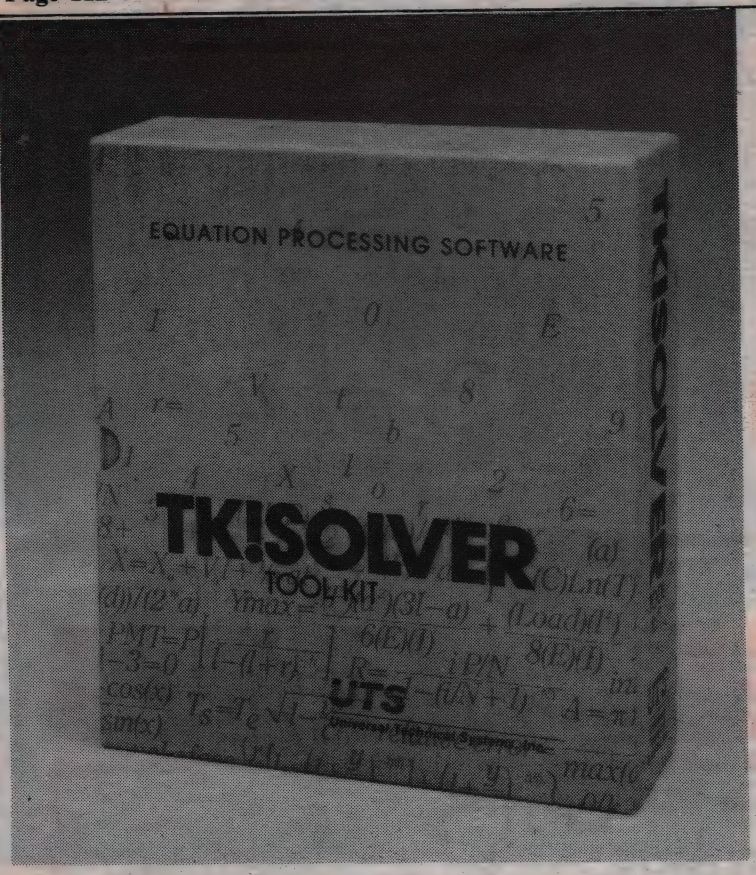

TK!Solver Reissued

TK!Solver

Universal Technical Systems (UTS) recently announced in Rockford their plans for revising and merchandising their latest software acquisition, TK!Solver. TK!Solver, an equation processing program, had been developed by the originators of Visicalc, the software package whose success was credited with the birth of the personal computer boom. Until it was purchased by Universal Technical Systems, TK! Solver most recently had been owned by Lotus Development Corporation of Boston, Massachusetts.

In their announcement UTS described the modifications which constitute the latest version of TK!Solver as well as the customer support and marketing plans. One of the primary changes will be a price reduction from $400 to $250 for the software package. Revisions in TK!Solver include performance at three to four times the speed of the previous versions, ability to install on a hard disk, of color support and ability to use "If-Then" rules. For current owners of TK!Solver, an upgrade package is available for IBM PC and compatibles for $50.00.

Jack Marathe, president of UTS, discussed UTS' commitment to their new product. "It is our intention to continue to offer significant improvements in the product. We feel that we must have a strong, on-going R & D effort to maintain the market lead that TK!Solver has established."

"There were several things that we felt were necessary before we purchased TK!Solver," said Marathe. Among these things were access to the people responsible for developing the product, a strong idea how the product should be intelligently improved and the plan for its effective distribution. "We were fortunate to bring in a team of people primarily responsible for the development of the product," indicated Marathe. One of the individuals was identified as Dr. Milos Konopasek, the originator of the TK!Solver concept.

Art Cornwell, marketing vice president of UTS, was very optimistic about the future of TK!Solver. "During its brief exposure to the marketplace, TK! sold tens of thousands of copies. Considering the unique nature of the product, that is a strong acceptance. This is the first equation processing software package available for personal or any other class of computers. For the first time, equations can be easily and quickly solved without laborious manipulations and programming. What word processing software did for words, TK!Solver does for equations."

UTS will use a combination of existing distribution channels as well as direct mail/telemarketing to market TK!Solver. According to Cornwell, "One of the problems TK! had in the market was that prospective customers didn't understand the product. To avoid that, we're going to use direct mail with telephone follow-up. We will be able to target to an informed customer and explain how the product can be used."

During this announcement, UTS indicated the appointment of leading software distributors in the USA, Europe and Australia. In addition, a promotional relationship has been established with Penton Publishing.

For further information contact Universal Technical Systems, Inc., 1220 Rock Street, Rockford, Il. 61101; 1-800-435-7887.

Mention that you read about it in *Computer Shopper*. ●

Productivity Software continued from page 110

a special program, etc.

Although I mentioned earlier the use of the space bar to signal the end of a short form (as the company refers to the abbreviaitons), there are other delimiters which convey this, including most punctuation marks. In fact, appropriate use of the punctuation marks can handle some of my observations about backspacing and periods. For instance, type LK2HR. (Note the period this time!) and you get: I look forward to hearing from you at your earliest convenience. (Note again the period.)

Aha! Using a more appropriate delimiter solves the problem!

Loading and All That

The disk provided is a data diskette, and a non-copy-protected one, I might add. You can copy the files over to a system disk. You will probably need to configure the program for your hardware, although I actually played with the original disk right out

continued on page 114

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Desktop Applications Plus Write And Paint For Microsoft Windows

Microsoft Corporation announced it will offer a set of desktop applications, several utilities and Windows Write and Windows Paint with the retail shipment of Windows, all priced at $99.00.

In order for an operating environment to succeed, it must provide immediate utility to the user. According to Steve Ballmer, vice president of systems software at Microsoft, "Windows allows a user to build his own integrated package of applications. Windows runs most existing standard applications like Lotus 1-2-3™, dBASE II™ and dBASE III™ and Microsoft Word. In addition, Microsoft is providing a variety of Windows applications which are designed to take advantage of the foundation that Windows provides for a new generation of graphically-based applications."

Windows Applications

Windows include a set of desktop applications that allow the user to manage day-to-day activities and can be used interchangeably with standard DOS applications.

* **MS-DOS Executive** is a file management program and a command center for running programs. Drop-down menus allow access to common DOS functions such as copying, deleting or renaming files, formatting disks or creating directories.

* **Calendar** is an electronic appointment book that allows a user to keep track of his schedule. Appointments can be set for any time with an optional alarm. The calendar can be viewed by day or by month and includes a notes area to leave related information for a particular day. Appointments can be printed for a specified day or range of days.

* **Cardfile** is a simple filing program that can be used to file names, addresses and other information. Cardfile includes an auto-dial capability to automatically dial a phone number stored in the file (providing the user has a Hayes-compatible modem). A user can enter the information in any order, and Cardfile will do the sorting.

* **Notepad** is an electronic memo pad that can be used as a scratch pad and simple text editor to jot down notes. A time/date log option allows you to use it like a diary to keep track of time-related activities. You can transfer text between Notepad and other applications running in a window.

* **Terminal** is a telecommunications program that allows the user to log into information services such as Dow Jones News/Retrieval® and CompuServe®. The program features an auto-dial capability for Hayes-compatible modems. A user can also "capture" information received to a file or copy it to other Windows applications.

* **Calculator** is a program that emulates common calculation functions. A user can perform standard arithmetic operations, calculate percentages and square roots and can paste results into other applications.

* **Clock** is a program that allows the user to keep track of

continued on page 116

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○ Centronics Printer port
○ Joystick port
○ MS DOS 2.11
○ Dual 360K drives
○ Real time clock
○ Color Graphics card
○ Monochrome Monitor*
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○ Hard-drive ready power supply
○ CPU
○ System Enclosure
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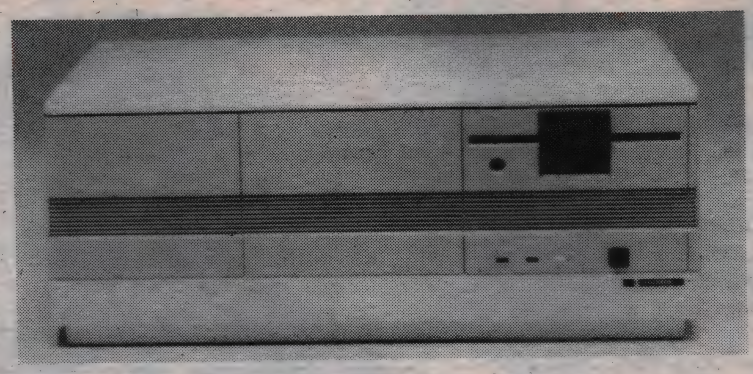
Harris Corporation Announces Concept 4300



Harris Corp. PC Workgroup Server

Harris Corporation recently introduced the Concept 4300, a personal computer workgroup server. The 4300 is the latest addition to the company's Concept III series of business information systems.

The announcement was made by Wesley E. Cantrell, senior vice president for Harris Business Information Systems Sector, who described the device as one which integrates a Xenix-based multi-user computer with networked personal computers.

The Concept 4300 is a true multi-user, multi-tasking office automation system," Cantrell said. "It effectively integrates the powerful multi-user benefits of Xenix, the applications software available for MSDOS-based microcomputers, the resource sharing capabilities of a PC network, and Harris' advanced office automation applications."

"The 4300 provides these capabilities in a user-friendly, transparent common interface environment called Perspective™," he said.

Perspective is a soft-key common user interface developed by Harris. It allows the user to select an application function without having to know whether the application must run in Xenix, MSDOS or Harris' proprietary operating system, H-DOS. This makes it extremely easy to move from one application to another.

The Concept 4300 can accommodate up to eight PC workstations. These may include any IBM-compatible personal computer and Harris' new Concept 2100 medialess PC workstation. It can be configured as a standalone workgroup, or as a node to the larger Concept 6000 server.

The Concept 4300 is available for immediate customer delivery. It is marketed by Harris Integrated Systems Marketing Group which is comprised of the National Accounts Division and the Lanier Business Systems Division.

Based in Melbourne, Florida, Harris Corporation is a producer of products for the worldwide information and communciations technology market.

For further information contact Lanier Business Products, Inc., 1700 Chantilly Drive, N.E. Atlanta, Georgia 30324. (404)329-8000.

Mention that you read about it in *Computer Shopper*. ●

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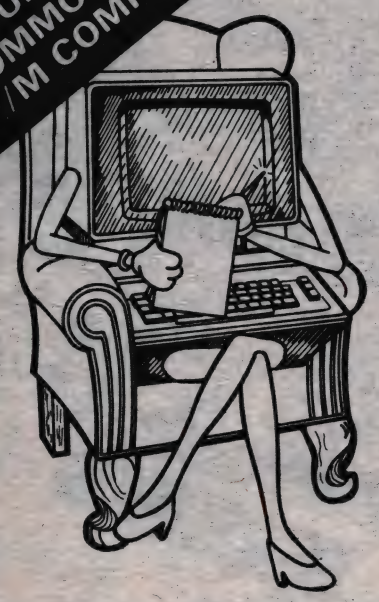

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Designed to run on a large mainframe, ELIZA has never before been available to personal computer users except in greatly stripped down versions lacking the sophistication which made the original program so fascinating.

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Productivity Software continued from page 112

of the package and successfully ran the program after just a couple of minutes, with little use of the help function or the manual. Productivity Software International recommends a good hour to work with the manual and tutorial, and that is good advice. I was impressed that I was up and running right away. However, I do recommend taking the time to configure and read directions to prevent unwarranted changes.

To cite one example, since I did not configure the program, I got a default configuration of an IBM XT, and this took over my keyboard so that the arrow keys on my Tandy 1000 — a separate cluster not part of the numeric keypad — took on different key uses, and I had to use the 2, 4, 6, 8 for down, left, right, and up, respectively, as on an IBM. In retrospect, I don't yet know whether I can modify this, but it is not serious even if this cannot be changed.

The program itself is called up just once after loading DOS by typing PPLUS (to load the program) or PPLUS xxxxx where "xxxxx" symbolizes the name of your word list. If you don't include the word list now, you'll need it later to be read into memory. To do so later, type PMENU from DOS and follow the directions there. Once loaded, as stated before, the ALT and ESC key combo activates the program.

Summary

At $195, the program is pricey, but it has great potential for those who do a lot of word processing. I don't see casual typists using PRD+, and some people will not want to bother to learn abbreviations or create their own. But writers and others who type a lot should consider PRD+. You should also check with the company about compatibility, for there may be some small problems with use with Microsoft Word, XY Write, and one or two others, as well as competition with other memory-resident programs for control of the Keyboard. Caveat emptor!

Productivity Software International, Inc. is located at 1220 Broadway, New York, NY 10001; phone (212) 967-8666. ●

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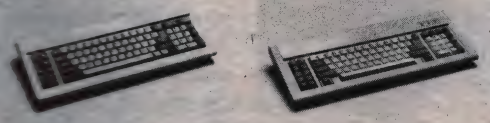

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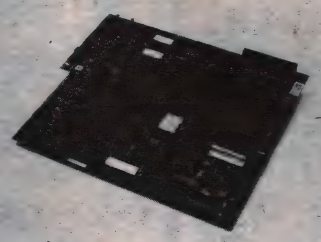

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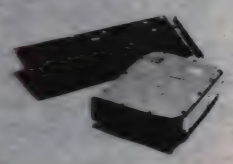

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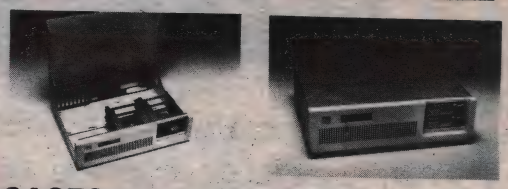

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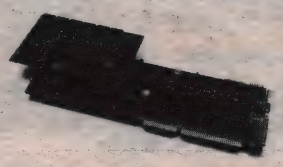

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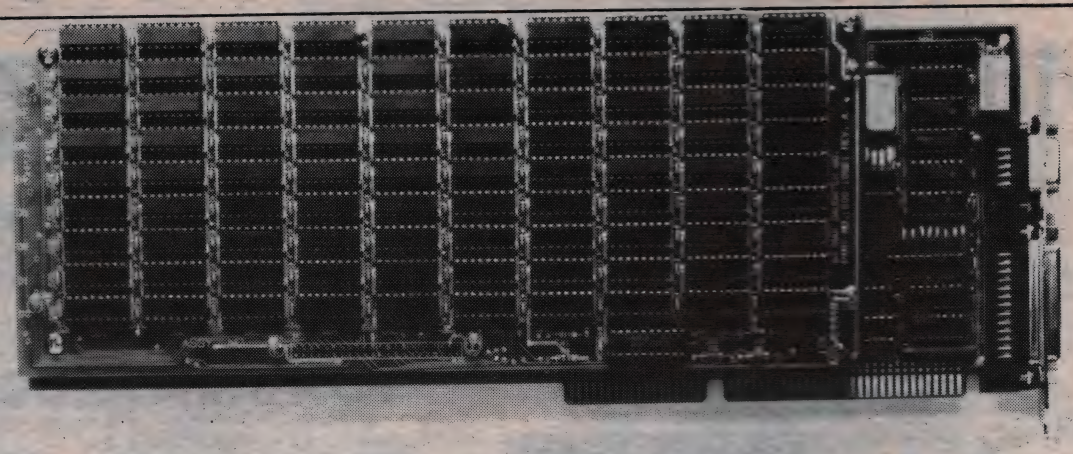
Multifunction Board For The IBM PC AT



Supermax/EMS Multifunction Board For AT

IDEAssociates has introduced IDEA Supermax/EMS, a high-performance multifunction board for the IBM* PC AT that offers expanded, extended and conventional memory, two serial ports and one parallel port as standard features, and has a memory capacity of up to 4MB.

IDEA Supermax/EMS offers serial and parallel ports as part of the board, rather than as options at additional cost. The new board has among the highest memory capacity of AT multifunction boards on the market. Its 4MB of RAM (random access memory) supports both expanded and extended memory.

The new board's expanded memory feature is compatible with software applications written to the Lotus*/Intel*/Microsoft* expanded memory specification (EMS), including Lotus 1-2-3*, Displaywrite 2*, Microsoft Word, dBase III Plus*, and WordStar*. Its expanded memory function provides the capability and speed for easily manipulating data-intensive applications, such as large spreadsheets and data bases.

Included with IDEA Supermax/EMS is print spooling software, which uses expanded memory to print large files without tying up the PC.

The multifunction board can also use the 4MB of RAM as extended memory to create a virtual disk (RAM disk) in DOS. The size of the virtual disk is only limited by the total system memory. Extended memory is well-suited for applications running under XENIX*, which require large amounts of memory.

Suggested retail price for IDEA Supermax/EMS with two serial ports and one parallel port as standard features ranges from $495 for a bare board to $2,595 for 4MB of memory. The product is currently available.

For more information contact IDEAssociates, Inc., 35 Dunham Road, Billerica, MA 01821, (617) 663-6878.

Mention that you read about it in *Computer Shopper*. ●

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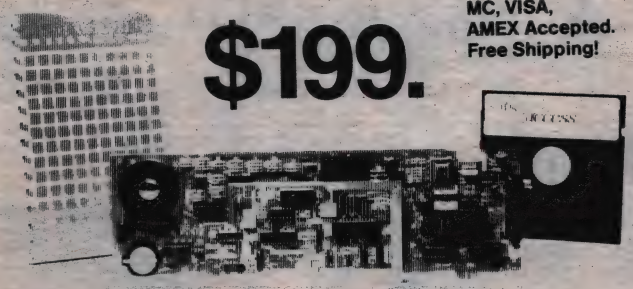

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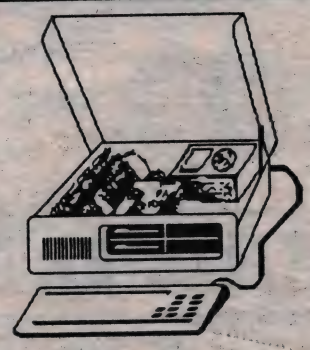

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Desktop Applications continued from page 113

time through visual representation on the screen.

* **Reversi** (sometimes called Othello) is a game of strategy played against the computer and includes four levels of difficulty.

Utility Programs

Windows also includes several utility programs to assist the power user in accomplishing his tasks.

The utility programs are Control Panel, PIF Editor, RAMDrive, Clipboard, and Print Spooler.

* **Control Panel** is a program that allows the user to set and change Windows system parameters like date, time, communications ports, screen colors, as well as install new printers.

* **PIF Editor** allows a user to create and edit Program Information Files. These files, known as PIF files, allow the user to run standard applications in the most efficient way under Windows.

* **RAMDrive** is a program that allows the user to set up memory expansion cards, including the Intel Above™ Board, as a RAM disk. This permits the user to use the memory card to work with more standard applications than will fit in the 640K limits of the PC.

* **Clipboard** allows the user to view the contents of information copied from other applications.

* **Print Spooler** allows the

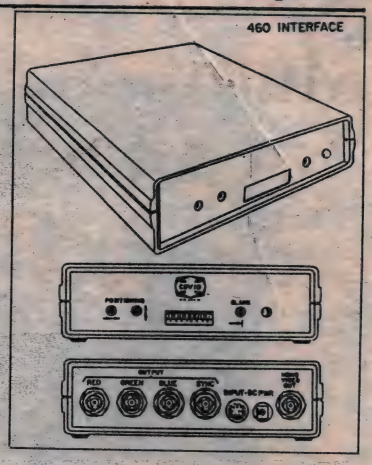
continued on page 120

Video Interface For IBM EGA Board

Covid has announced it's model 460 video interface for the IBM Enhanced Graphics Adapter and other color computers and terminals. This external interface will provide quality output allowing the user to connect a CRT to specialized data projectors or special large screen monitors for display to groups of people during sales presentations, training seminars, or boardroom situations. The 460 measures 5 1/8" x 1¾" x 6" and is packaged in an attractive, shielded case. The 460 will convert TTL level signals from the computer into analog RS 170-like video signals. The output stages are designed to drive several hundred feet of standard RG 59 cable into 75 Ohm loads without picture degredation. The 460 is capable of displaying monochrome, 7 color, 16 color, IBM 16 color, 64 color, AT&T 6300 color/monochrome or 16 of 64 color text and graphics, and simultaneous composite video with each color represented by a different brightness level.

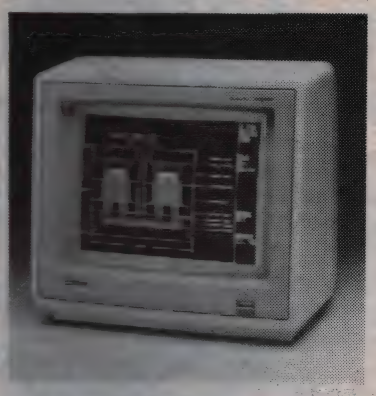
The 460 interface is designed with interchangeable cables to fit the particular host computer or terminal. This way the same interface may be used with many different source terminals/microcomputers. The circuitry utilizes the latest in programmable and high speed C-MOS technology. List price for the 450 and cable set is $450. OEM, dealer, and quantity discounts are available. For more information contact Video Inc., 2400 W. 10th Place #4, Tempe, AZ 85281, 1-800-638-6104, 602-966-2221.

Mention that you read about it in *Computer Shopper*. ●



Video Interface for IBM EGA Board

New Enhanced Color Display Monitor



Enhanced Color Display Monitor

A new EGA-compatible color monitor, designed for high resolution color business applications has been unveiled by C. Itoh Digital Products, Inc. (CIDP) during Spring Comdex on April 28.

Called the Chroma Pro CM 4000, the monitor is ideally suited for applications requiring sharp, stable color images without compromising the quality of clear, well-defined true monochrome text.

The versatile CM 4000 is both Enhanced Graphics Adaptor (EGA) and Color Graphics Adaptor (CGA) compatible, incorporating both high-resolution enhanced and medium-resolution color graphics displays, conforming to the IBM standards.

In the standard resolution mode of 640x240, the CM 4000 supports a wide range of popular interface boards manufactured by IBM, Tecmar, Paradise Systems and Quadram. In the high resolution enhanced mode, the monitor supports the growing number of EGA-compatible boards, with a horizontal scanning frequency of 21.85 KHz

continued on page 122

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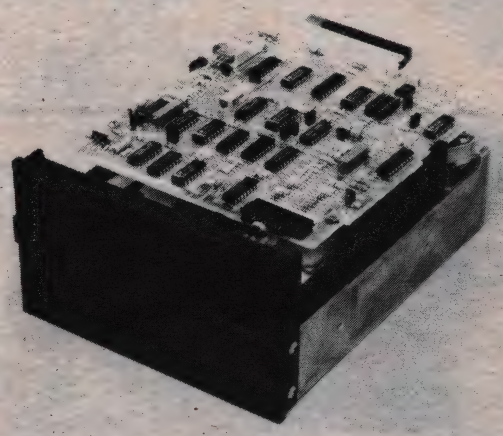

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Compatible with all IBM Software (PC DOS 2.0 or Higher)
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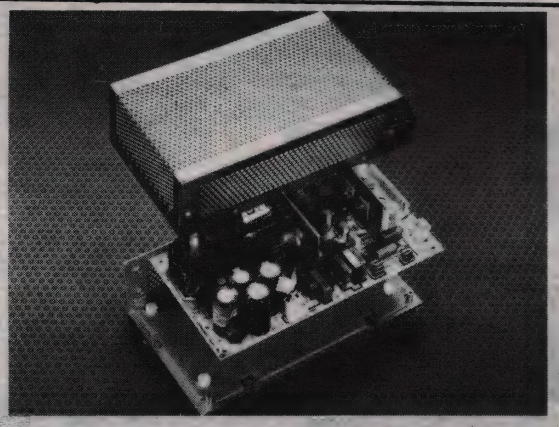
* Device Driver Sold Separately for $30.00



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- UL/CSA/VDE approved
- 100% thermal cycle and burn-in
- Vacuum impregnated transformers
- Dual input voltage 115/230 VAC
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- Short circuit protection
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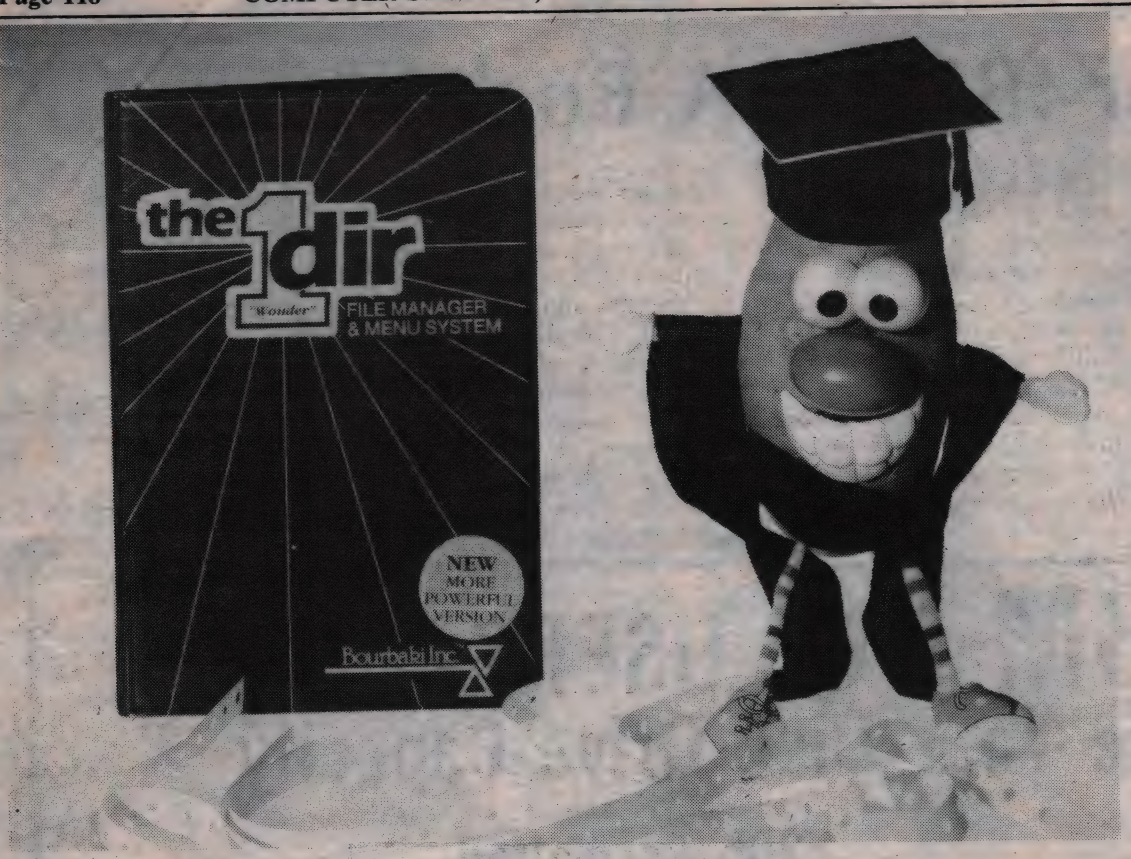


"Wonder" (1Dir) Easy To Use File System

Print Screen Gets Smart With 5-Way Choice In 1 Dir

Bourbaki, Inc., (Boise) now features a triple-action print utility in its popular DOS-shell utility software. The standard DOS (Shift-PrtSc) Print Screen keystroke triggers a selection of options: print a standard (DOS DIR) directory to paper or disk, a wide (DOS DIR /W) directory to paper or disk, or a screen dump to paper. The ASCII print-to-disk file (DIRECT.LST) is complete with the drive and subdirectory identification, a list of lower-order subdirectories, a sorted list of files within the directory (as displayed in the utility's onscreen scrollable directory; DOS-style "wild card" selective listings and display are also possible), a count of files and disk usage statistics. 1 dir Version 3.5 (for IBM PC, XT, PC/AT, 3270, PCjr and compatible systems) is available for $95 (suggested US resale) at participating Bourbaki dealers; dealer, OEM, VAR and site license inquiries are invited.

1 dir (pronounced "wonder") replaces the usual DOS prompt (A> or C>) with a full screen of information, including a list of files in the current directory, sorted by name, extension, size or date; a system status billboard, a menu of available commands (or applications or other menus) and more.

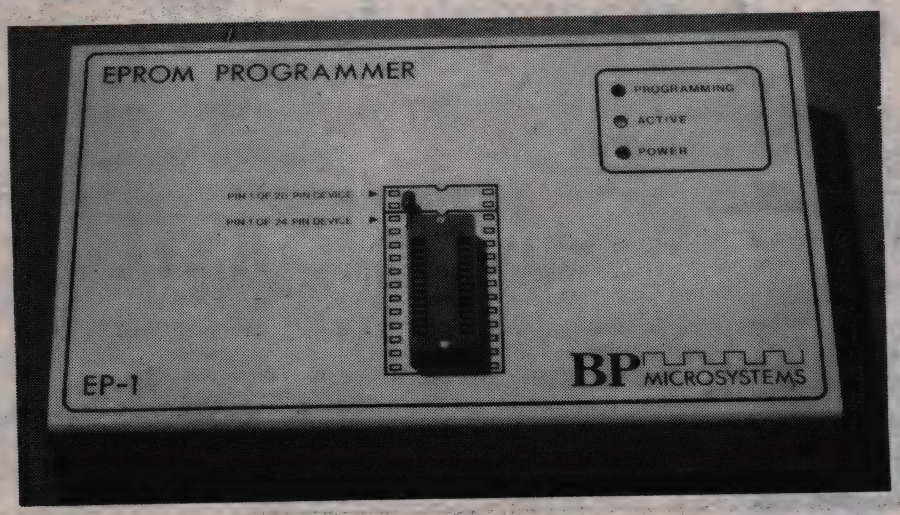
1 dir provides at-a-glance information on files and system status plus control over related operations. It well suits the needs of new users who may be intimidated by complex DOS commands and syntax; experienced users will appreciate the short-cuts it provides in managing the details of handling disk files and more. 1 dir is particularly valuable on hard disk systems and local area networks, where large numbers of files and potentially confusing subdirectory structures may exist.

1 dir boasts a Menu-Builder facility that comes up in a keystroke. It lets a user create any number of menus. Each menu entry can call a command or application (DOS or .Com, .EXE or .BAT file), a new directory or another menu. Each entry can have a screen-bottom message associated with it, and the message text can include enhanced, reversed or blinking characters at will. An entry can support multiple-file operations and request keyboard input. A single command line can support multi-

continued on page 124

EPROM PROGRAMMER

You can program or duplicate virtually every EPROM or EEPROM up to 512K with the low cost EP-1. Menu-driven chip selection gives you the correct programming algorithm quickly and easily. You save programming time by getting the fastest intelligent programming algorithm recommended by the manufacturer. The EP-1 works with the IBM PC, XT, AT, and compatibles, development systems, CP/M systems and other computers. The EP-1 costs only $349 and requires no modules or software to program the full spectrum of MOS and CMOS EPROM's and EEPROM's. It is covered by a full one-year limited warranty.



FEATURES
- Fast Programming Algorithm
- Menu Driven Chip Selection by Manufacturer and Part Number
- Supports Chips Individually, not Generically
- Reads and Programs with Intel, Tekhex, Motorola and Straight Hex formats as well as Binary Files
- Generates and Checks Checksums
- Microprocessor Controlled
- Gold Textool ZIF IC Socket
- RS-232, 7 baud rate from 150 to 9600
- Automatic Self Test

PC-DOS COMMUNICATION SOFTWARE (included)
- Works with IBM PC, XT, AT or compatible
- Programs in batch mode
- Automatically uploads and downloads files

EP-1 EPROM Programmer Device List

AMD	2764A	R2816
Am2716	27C64	R5213
Am9716	87C64	R52B13
Am2732	27128	R52B33
Am2732A	27128A	
Am2764	27256	**Seeq**
Am27128	27512	2764
Am27128A	27513	27128
Am27256	2816A	27256
Am27512	2817A	27C256
Am9864	2864	2816A
Fujitsu	**Mitsubishi**	2817A
MBM2732A	M5L2764	5133
MBM2764	M5L27128	5213
MBM27C64	M5L27C128	52B13
MBM27128	**Mostek**	52B33
MBM27256	MK48Z02	5516A
MBM27C256	**Motorola**	55B33
Generic	MCM2716	5517A
2716	MCM2532	**SGS**
27C16	MCM68764	M2716
2732	MCM68766	**TI**
27C32	**National**	SMJ2516
2732A	MM2758-A	TMS2516
2764	MM2758-B	SMJ2532
27C64	MM2716	TMS2532
2764A	NMC27C16	TMS25L32
27128	NMC27C32	TMS2732A
27C128	NMC27C256	SMJ2564
27128A	NMC9817	TMS2564
27256	NMC98C64A	TMS2764
27C256	**NEC**	TMS27128
27512	uPD2716	**Toshiba**
Hitachi	uPD2732	TMM2732
HN462716	uPD2732A	TMM2764
HN462532	uPD2764	TMM27128
HN462732	uPD27C64	TC57256
HN482732A	uPD27128	TMM27256
HN482764	uPD27256	
HN27C64	uPD27C256	**Xicor**
HN4827128	**OKI**	X2804A
HN27256	MSM2764RS	X2816A
Intel	**Rockwell**	X2816H
2758	R87C32	X2864A
2716	R2764	X2864B
2732	R27C64	X2864H
2732A	R87C64	X28C64
2764		

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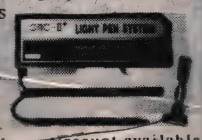

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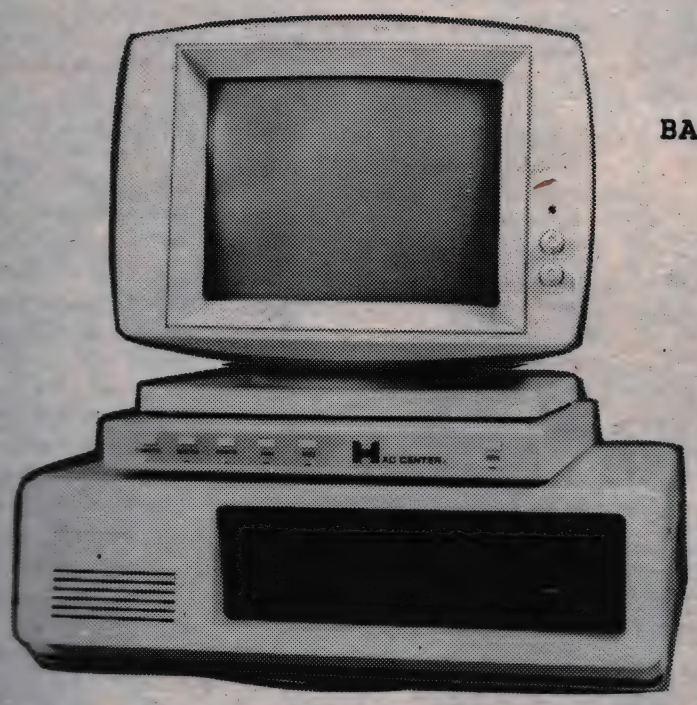

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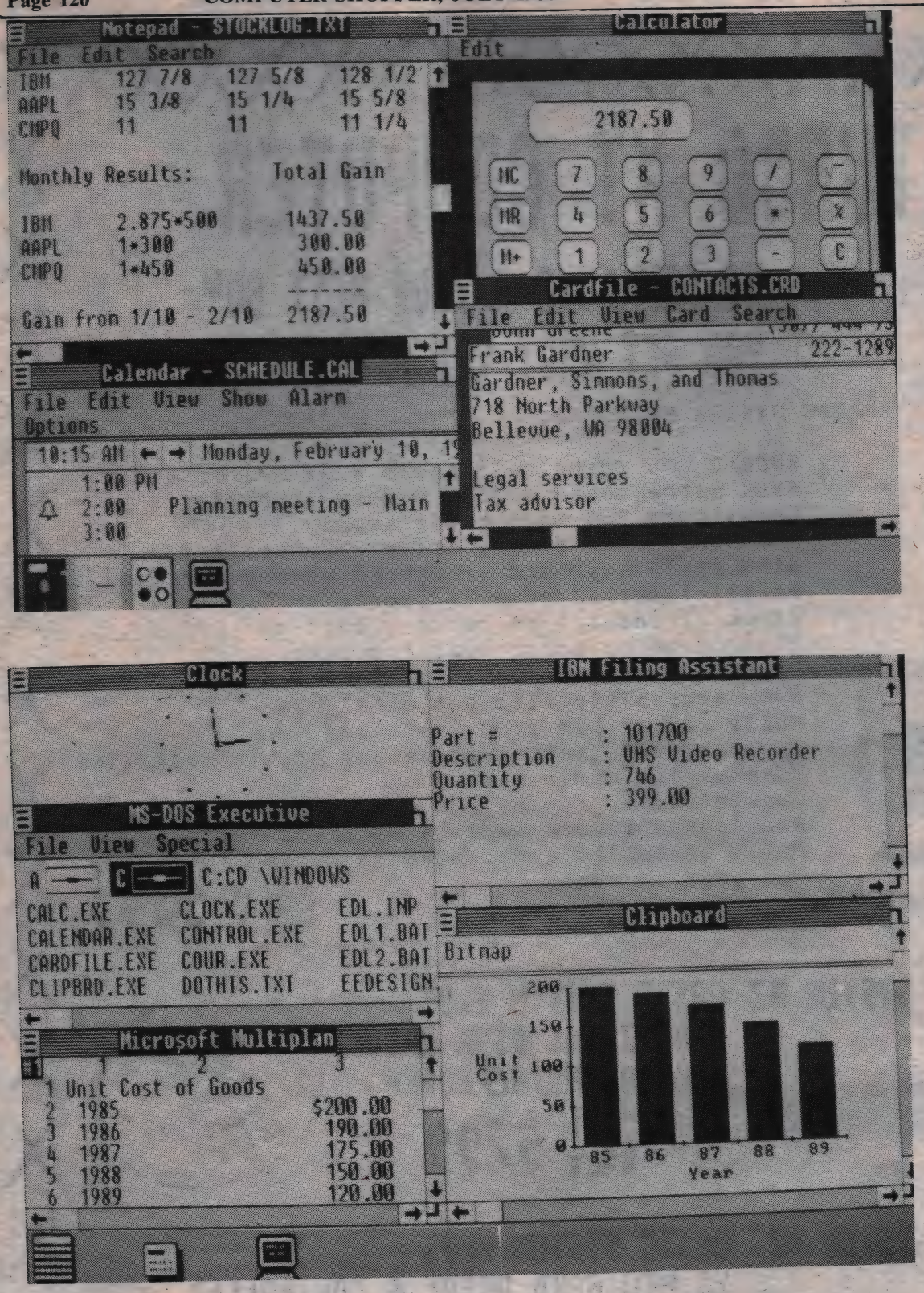

Microsoft Windows Desktop Applications

Desktop Applications continued from page 116

user to work on one file while printing on another.

Windows Write And Paint

As a special introductory offer, two additional applications will be included with Windows for a limited time. These applications are Windows Write, a graphics-oriented word processor and Windows Paint, a drawing tool.

Windows Write is an easy-to-use word processor that can be used for day-to-day personal and business letters, memos and reports. Windows Write uses Windows' cut and paste functions to allow for transfer of text and graphic information for consolidation of data from multiple programs.

Windows Write is disk-based so the user can have documents of any length. Windows Write is file-compatible with Microsoft Word for the PC allowing the user to take Word files to be loaded directly by Windows Write (or vice versa) and edited or customized. Documents created by Windows Write will look the same on the screen as when they are outputted, giving the user a "what you see is what you get" effect. Functions may be accessed through dropdown menus and dialog boxes from the keyboard or through a pointing device such as a mouse.

Windows Write supports character formatting including fonts and font styles, paragraph formatting, tab settings, optional page ruler, and running heads.

Windows Paint is an easy-to-use graphics program. With Paint, a user has the necessary tools such as lines, circles, patterns, rectangles, text font styles and sizes to create a drawing for a personal announcement or an illustration for a business report. It can also be used to enhance or highlight a chart or graph transferred from a standard application. The modified chart can be saved, printed, or copied into a Write document.

Windows applications and utilities make Windows an extremely useful and productive power environment for the integration of user-selected applications and provide a cornerstone foundation for future powerful applications based on the Windows interface.

For more information on Microsoft Windows, call 1-800-426-9400. In Washington state, contact Microsoft at 1-206-828-8080. Or write for more information to Microsoft Corporation, Customer Relations Department, 10700 Northup Way, Box 97200, Bellevue, Washington 98004.

Mention that you read about it in *Computer Shopper.* ●

Write-Once Laser Disc With Removable Media

Portable Solutions, Inc., (aka BackPac International Corp., Austin, TX) is introducing a write-once laser (optical) disc peripheral that offers more than 100 MB of file backup and restore capacity per removable disc and is packaged in a totable unit. While the optical disc can only be written to once, it provides a permanent backup that can be read from repeatedly with full immunity to wear. The Portable Solutions BackPac BP-100+ optical storage system (for IBM PC, XT, PC/AT and compatible systems under DOS 2.0-up) is available for under $5000 (all prices suggested US resale) at participating dealers, distributors and resellers; inquiries are invited.

The BackPac BP-100+ is the first portable data storage system to use laser technology for writing once and repetitive reading. It can store up to 100 MB of data on one side of a LitePac 330 optical disc (equivalent to 330 floppy disks) and boasts a read-data of 10 MB per minute. Additional

continued on page 132

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Seagate 20MB 450
Microsience 10MB 399
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Irwin 10MB 475

DISKETTES
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Basf DS/DD 14
Nashua DS/DD 11

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A55 ..... $455
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A40 235
PJ-1080A 455
BJ-80 395
LBP-8A1 2519

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Turbo Disk Controller For PC And XT Hard Disks

Sysgen, Inc. unveiled a high-performance controller for IBM PC and XT hard disks that the company believes is the fastest on the market.

Teamed with a high-performance hard disk, the Sysgen SC6000 Turbo Controller offers users of IBM PC, XT, and compatibles disk access speeds exceeding those of the IBM AT, according to third party benchmark tests performed by the company.

Sysgen also introduced a high-capacity, high-performance Winchester disk drive subsystem, called the Matched Pair, which incorporates the Turbo Controller. The subsystem is available in either 70 or 40 megabyte capacities, each with an average disk access time of only 28 milliseconds.

The Turbo Controller's true 1:1 interleave factor accounts for its high performance. Sysgen achieved the 1:1 interleaving by incorporating a full track buffer and read-ahead BIOS on the controller.

The Turbo Controller can control up to two hard disk drives. In addition, users can plug an optional Sysgen SC500 tape controller for streaming tape back up onto the Turbo Controller's board. Together, the two controllers occupy only one expansion slot in the IBM PC or XT.

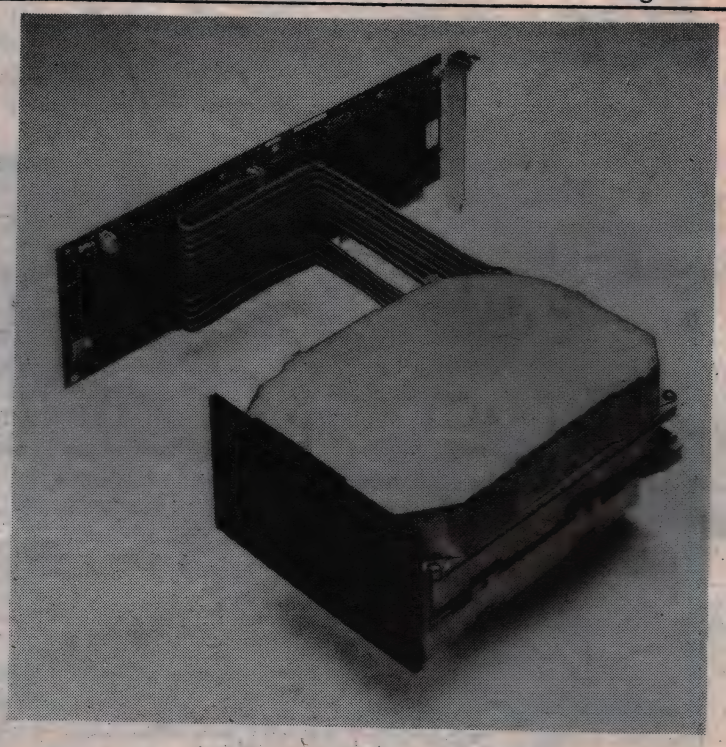
Both Matched Pair disk drives are self-booting; the 40 MB drive is half-height, and the 70 MB drive is full-height.

The Turbo Controller and Matched Pair will be available in June; the optional SC500 tape controller will be available in the third quarter of 1986.

Suggested retail prices are $250 for the Turbo Controller, $2,995 for the 70 MB version of the Matched Pair, and $1,795 for the 40 MB model. The price of the SC500 tape controller has not yet been determined.

For further information contact Sysgen Incorporated, 47853 Warm Springs Blvd., Fremont, CA 94539. 415-490-6770.

Mention that you read about it in *Computer Shopper*. ●



Sysgen Controller For Hard Disks

SURPRISE!

Maynard Electronics has announced SURPRISE! high speed board. SURPRISE! increases the PC's speed up to 2½ times the normal speed and doesn't use an expansion slot. SURPRISE! is placed directly onto the system's mother board and installs in seconds. You simply remove the 8088 chip with the chip puller that Maynard includes and seat SURPRISE! in the 8088 socket. The most prominent feature about SURPRISE! is that it retails for $249.00!

On the release of SURPRISE!, Robert Wight commented, "We looked at the turbo board market and knew that something was lacking. The only boards on the market sell for $600 to over $1000 and attempt to turn a PC's speed into that of an AT's. However, if the user is going to reinvest that much money, why not just upgrade to an AT? So we set out to make a fast, affordable turbo board. For only $249 a user can have a PC or XT work over twice as fast, and that makes sense."

Once installed, SURPRISE! can be "toggled" between fast and slow in the same manner as the Compaq Deskpro. To toggle between speeds on the Compaq or SURPRISE!, you simply type Ctrl-Alt-/.

While the SURPRISE! card primarily speeds up the hardware, the software included with SURPRISE! accelerates the speed of DOS. All other boards on the market concentrate simply on speeding up the computer and don't touch DOS. Another problem with turbo boards now available is that all take up an expansion slot. Many PC users are slot-bound and cannot afford to devote an entire slot to this kind of "convenience" product.

For further information, contact Maynard Electronics, 460 E. Semoran Blvd., Casselberry, FL 32707; 305-331-6402.

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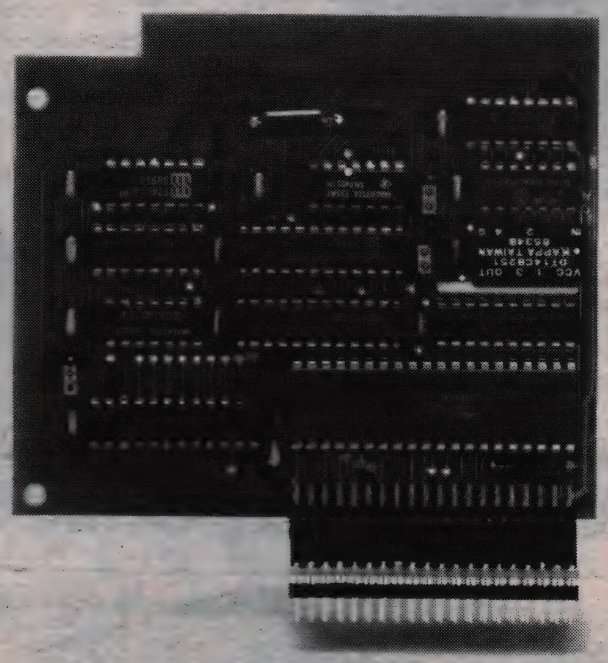

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New Enhanced Monitor continued from page 117

and a resolution of 640x350. It also generates various combinations of 16 colors from a 64 color palette.

Supported by most popular computers, including IBM PC, XT, AT and compatibles, the CM 4000 features a non-glare dark screen for easy viewing. All user controls, including text-switch, brightness, contrast, vertical hold, vertical size and horizontal positioning are conveniently located on the side panel. Available options include a tilt/swivel base for viewing at any angle.

The monitor is backed by CIDP's full one-year warranty on parts and labor and a growing network of nationwide service centers.

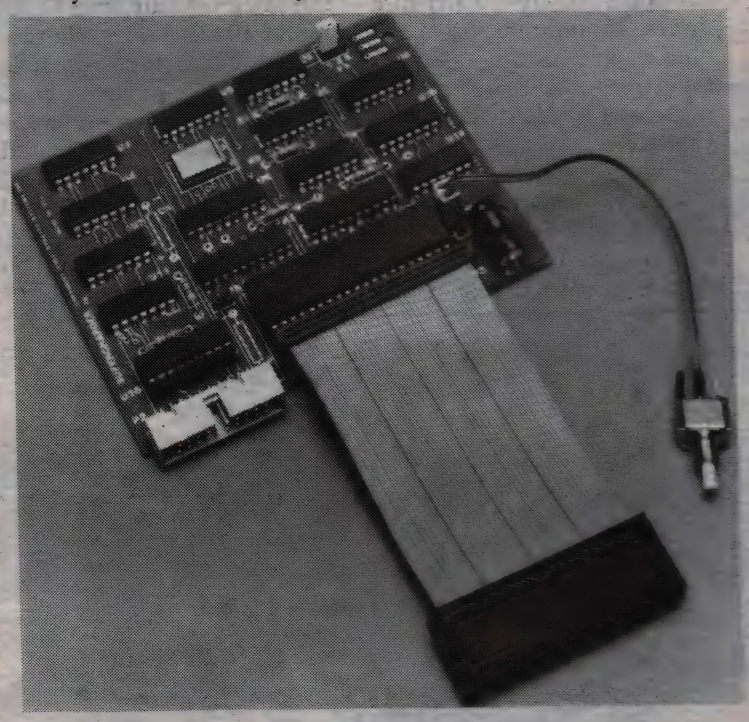
For more information, contact C. Itoh Digital Products, 19750 South Vermont Avenue, Suite 220, Torrance, CA 90502. Telephone (213) 327-2110 or (800) 423-0300.

Mention that you read about it in *Computer Shopper.* ●

Supercharger Doubles Operating Speeds

The Dynatec PC Supercharger is a speed optimizer which makes your IBM PC XT and compatibles run twice their normal operating speed. This small plug-in board uses a fast 8088-1 microprocessor exactly like the one in your system. That makes it 100% compatible with your hardware and all software.

The Supercharger speeds up all computer operations, including memory access and screen writes, on Lotus 1-2-3, dBASE III, WordPerfect, Microsoft Word SideKick, Flight Simulator and many more. Totally "transparent" to the system and the user, Supercharger also speeds up operation of the new high-capacity memory boards and high resolution graphics boards.



PC Supercharger Board

The exact amount of speed improvement offered by Supercharger depends on the application. For example, reading data from memory can be done at high speed, while reading data from a disk drive must be done at a slower speed. Spreadsheet and word processor software, which uses memory extensively, will run at 9.54 MHz, twice the normal operating speed of your PC.

The Supercharger automatically adjusts system speed for each operation.

The Supercharger plugs directly into the 8088 socket with no system modification, leaving all expansion slots free for memory, video and other peripheral boards. Illustrated instructions make installation quick and easy. No specially purchased tools or technical skills are required. Retail price is $279.95.

For additional information contact Dynatec Systems, Inc., 870 East 9400 South, Suite 103-B, Salt Lake City, Utah 84070; (801) 572-6867.

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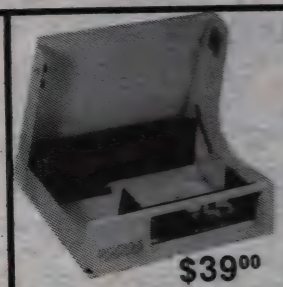

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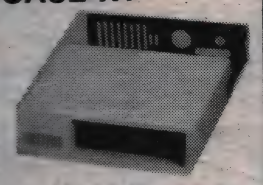

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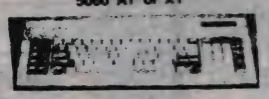

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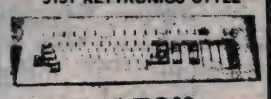

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Print Screen
continued from page 118

ple operations (separated and delimited by "~"). Password protection is available for any menu. A print option can supply a permanent record of a menu (or a permanent record of what's in each directory or subdirectory).

Much of the strength of the Menu-Builder lies in its use of 1 dir's unique Command-Builder, which goes beyond normal DOS commands. For multiple file operations at a single keystroke, special variables ($N for name, $E for extension, NE for both) can take advantage of the multiple-file flagging abilities of 1 dir. A third variable ($I) asks (with a user-defined prompt) for keyboard input and accepts it into the command string.

1 dir's Batch-Builder invokes with a keystroke; it captures (learns) sequences of commands (to change subdirectories, for example, before and after executing an application), automatically creating a batch (.BAT) file of them. These can even call other batch files — a difficult task to accomplish from DOS.

1 dir is exemplarily easy to work with. Up-down cursor-control keys move a pointer along the scrollable directory list of files. Left-right cursor control keys (or function keys) point to selections on the current menu; these may be DOS-level file operations (copy, type, erase, rename and more) or selections from custom user menus. This easy "point-and-shoot" technique is typical of the ways 1 dir simplifies life under DOS for a PC user, whether novice or advanced.

A user can customize 1 dir through its Options utility.

continued on page 125

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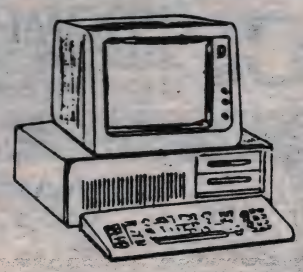

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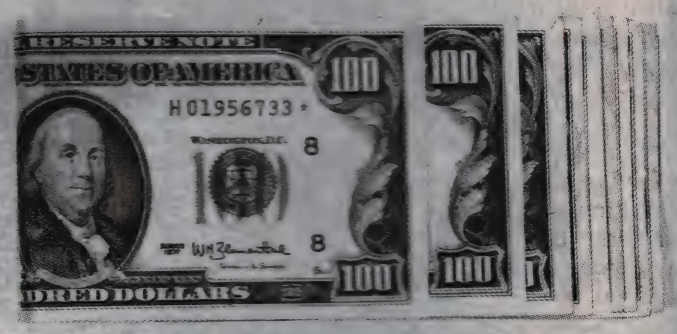

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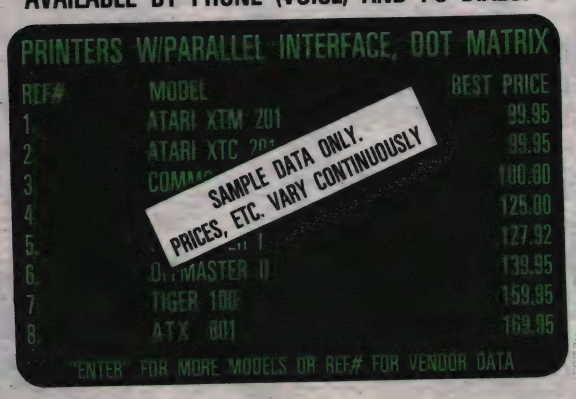

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Analyze!
continued from page 56

row keys to move the cursor to that position.

Now we type "MonthDay and press RETURN. The leading double quote mark tells Analyze! that this entry is a label, and that the label is to be right-justified.

We now use the down-arrow key to move to cell A4 and type +A2+A3. Following this, we move to A2, type a number, move to A3 and type another number. As we do this, the number in A4 changes instantly to show us the total of the numbers in cells A2 and A3.

This is a very simple example. In real life, of course, the column would contain enough cells to cover all the days of the month.

Analyze! is shipped on a Workbench disk, and requires only clicking on the icon to get started.

256K of RAM is needed, although 512K is strongly recommended. Analyze! will not work with versions of KickStart older than 1.1.

While the program can be run from the external drive, it is better to use the Analyze! disk as a start-up, immediately following KickStart. If going from another program to Analyze!, put the Analyze! disk in DF0 and press the CTRL and two A keys to reboot.

The reason for this is that MSS have implemented their own color scheme for this program. Booting from the Analyze! disk automatically sets the new colors.

The spreadsheet appears with black letters on a white background, with borders in reverse. Besides making a welcome change from the familiar white on blue, this color scheme also allows negative numbers to automatically appear in red.

The cell pointer is a rectangular highlighted block which may be moved around the spreadsheet either by using the arrow keys or by pointing to the desired cell with the mouse and clicking the left button.

Another method, activated by pressing the F5 key, prompts for a cell and then jumps directly there.

Most actions other than entry of items into the spreadsheet cell are initiated via the mouse in conjunction with drop-down menus, although some use is made of the function keys as above.

Analyze! has forty-one special formula functions (@ functions) covering such varied items as trig, loans, dates, Pi, etc.

Some of the terminology may seem odd to spreadsheet aficionados. 'Archive' is used for saving and retrieving spreadsheets.

The more familiar 'replicate', used in most programs of this type, is called 'copy' in Analyze!.

All the usual attributes of spreadsheets are present in Analyze!.

Columns may be set individually to the desired size and a number of formats are available for displaying numbers. These include fixed decimal, scientific notation, currency, etc. Formats may be global, i.e. used throughout the spreadsheet, or confined to desired ranges.

It is possible to have more than one spreadsheet in memory at the same time. As

continued on page 133

Print Screen
continued from page 124

Available options include a choice of screen display colors, default main and alternate menu selections, security feature access, toggles, novice or expert operating modes (novice requires an extra "verify command" step before executing a command) and more. Information on (special system) hidden files can be displayed or not. A user can also specify how much time must elapse without keyboard activity before a "screen saver" feature blanks the display.

For additional information contact Bourbaki, Inc., 615 West Hays Street, Boise, ID 83701; (208) 342-5849.

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Inside Commodore

The "Finer Points" of Commodore's KERNAL RS-232 Software Channel: (Or "How To Exterminate Serial Bugs")

by Ted Drude

This month we've got some helpful information on the ins and outs of RS-232 software programming. On the surface, programming the VIC-20, C-64, and C-128s, RS-232 channels seems to be a straightforward task. The C-64 and VIC-20 Programmer's Reference Guides (PRGs) give you a good overview of the proper syntax of using the RS-232 port with BASIC and assembler programs. If you use the correct syntax to OPEN the RS-232 channel, there shouldn't be any problem as long as you're running a 3-line interface at 300 baud or less.

What the PRGs fail to mention, however, are the hidden bugs that the C-64, C-128, and VIC-20 all have in their firmware emulation of the 6551 UART chip. This can lead to problems when you stray from the straight and narrow path of using the RS-232 port for anything other than low speed Commodore modems.

For example, at speeds of 1200 baud or more, there's a software timing bug in the KERNAL that causes problems in both the C-64 and the C-128 (when running in the C-64 or 40 column modes). The VIC-20 doesn't have this problem, but instead has a separate problem of its own that complicates X-line hardware handshaking. (We'll look at how to deal with these problems shortly.)

Finally, it appears that it's difficult, if not inpossible, for the KERNAL 6551 UART emulation to keep up with any device that's faster than 1200 baud (although the PRGs would lead you to believe otherwise). In other words, it looks like 2400 baud modems are out (without serious rewriting of the KERNAL routines to improve them). One solution to this problem to hang a REAL 6551 UART chip on the expansion bus, and forget the KERNAL software emulation. This chip can handle speeds up to 19.2K baud with no trouble. This might make a neat project for a future "Inside Commodore" column.

The 1200 Baud "Speed Trap"

Some early C-64 users who tried to hook 1200 baud modems up to their systems found that something was wrong. When they tried to OPEN a 1200 baud RS-232 channel, they found that it was not operating at the proper speed. So they contacted Commodore for help.

Commodore replied that this was very disconcerting to them. They knew that the RS-232 routines should work because they were developed on the VIC-20 and it could handle 1200 baud (obviously, they hadn't done too much testing of the C-64 at the higher baud rates).

Commodore scratched their collective heads over this for a while and finally gave an official reply: "The C-64 did not support 1200 baud because of some unkown bug." (Brilliant deduction, I tell you.)

Anyway, some of these C-64 users (ignoring Commodore) decided to trace the problem down on their own. After almost a year, not one, but two inter-related problems were found in the C-64 that caused the 1200 baud "speed trap."

The first "bug" was actually found when a fix to the problem was discovered by Rick Sterling of MicroTechnic Solutions (makers of the "Sixth Sense" communication package). If the one-shot timer used in the RS-232 CIA was switched to a continuous mode timer (software selectable), then the problem vanished. It seemed that Commodore has forgotten to program the CIA in a continous mode when initializing for RS-232.

A further analysis of the C-64 circuit and firmware, however, revealed that the real culprit was not the CIA chip, but the VIC-II chip. You see, 60 times a second, the VIC-II does a total system DMA (direct memory access), to read screen RAM and any sprite data it needs from memory. During that time, all CPU interrupts are totally locked out, including RS-232 NMI (None Maskable Interrupts).

The Commodore chose to implement the RS-232 serial port in such a way that the CPU has to respond rather quickly to NMI interrupts to

continued on page 140

```
1 REM CHANGES MADS SOURCE TO FILE LOADABLE INTO PAL-LADS-IEA - JRONDA 8/1985
2 A=PEEK(61)+256*PEEK(62):POKE4,INT(A/256):POKE3,A-256*PEEK(4):PRINT"MADS SOURCE
 NAME":INPUTA$
3 POKE828,100:POKE829,0:OPEN15,8,15,"I":GOSUB10:PRINT:OPEN8,8,8,A$+",S,R":GOSUB1
0
4 PRINT"":PRINT:PRINTPEEK(828)+PEEK(829)*256;:POKE152,2
5 GET#8,A$:PRINTA$;:IFASC(A$+CHR$(0))=13THEN7
6 GOTO5:END
7 IFPEEK(828)=255THENPOKE828,0:POKE829,PEEK(829)+1:GOTO9
8 POKE828,PEEK(828)+1:GOTO9
9 POKE631,13:POKE632,13:POKE633,13:POKE198,3:PRINT"GOTO4";:END
10 INPUT#15,E,E$,E1,E2:IFEN=0THENRETURN
11 PRINT"DISK ERROR":PRINTE;E$;E1;E2:CLOSE8:CLOSE15:END
```

Listing #1
(see page 140)

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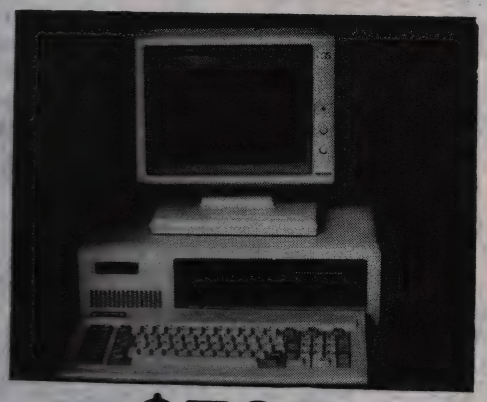

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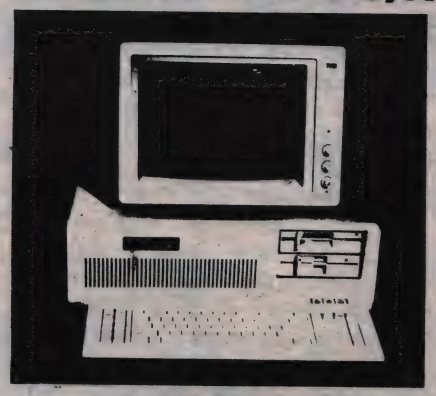

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Amiga Workbench continued from page 56

ing the star patterns. Match the necessary constellation on the strip with the view through your port. The extra point of light (always in the center) will be your target. Blast off.

Because time is an important factor, you'll have to decide whether to cruise normally, up to 300,000 kilometers per second, or to use trans-light speeds. Faster than light, the distance travelled shows up on your main screen. You'll have to be quick to leave the trans-light mode, otherwise you'll overshoot your target and have to find it again—and since you would then be on the other side of it, it would appear in a different constellation.

Once you are close to the target, it is identified on the message strip. This identification persists only as long as you keep the target centered on your screen, providing you with a means to lock on. In the case of Earth, the planet will gradually grow until it becomes a blue sphere and that moving dot of light near it is the moon.

Now the mechanics of orbital motion come into play. Earth is either advancing or receding relative to your position and whatever it is doing now, it will do the other later. In addition, it will go through phases of illumination as it orbits the sun, sometimes being only a faint shadow against the blackness of space. As you come closer, relative motion increases and you'll have to be quick with your speed controls to avoid having the planet whip by you like a highway sign.

Because each planet is different as to mass and gravity, and because those factors are taken into account here, there is no one landing procedure that will work for every mission. Your orbital velocity and altitude will vary with each planet but, fortunately, you are given opportunities to refly any of the missions in order to improve your time.

As you reach the point of orbital insertion, you hear the strumming of a guitar. This is the incongrous sound, very much out of place on the command deck of a space ship, and almost any other audible clue would have been better. You must orbit until you are over a base, signalled by a loud beep, and at that moment click on the land switch.

If you land successfully, you'll then be given a message telling you that your mission was accomplished and, out your viewscreen, you'll see a landscape that is representative of your target. These are not fanciful drawings, but superb renditions based on the latest photos and theories.

To complete your mission, you must now return to Comet Halley. This is much easier, since you merely locate it and fly into it with no involved landing procedures, and from there you may select the next mission.

Although the first mission was simple to define, others will not be. You may be told to land on a planet that has no atmosphere; to land on a planet that has no moons; to land on a moon that has an atmosphere. Any game that sends you to the encyclopedia to further your fun is well worth having and in navigating by the constellations you will soon, and painlessly, be able to identify them without resorting to the overlay strip.

The motions of the objects within our solar system are correct as is indicated by their phases of illumination and darkness; by the transit of the moon aross Earth or the transit of Earth across the sun; and the distances are to scale: Once you've made a trip to Earth, you'll be amazed at how long it takes to get to Neptune.

We recommend this one highly. The Halley Project is fun for anyone over the age of ten and educational as well. Once you've completed all the missions, turning in the best times of which you're capable, you may mail these scores to Mindscape. As it turns out, The Halley Project is a qualifying run and it is on the receipt of your best scores that Mindscape will inform you of the prime mission.

The Halley Project is published by Mindscape, Inc., 3444 Dunde Road, Northbrook, IL 60062. Suggested list price is $39.95.

Leaving you to do your best with that, we'll take a look at the Amiga...

...As A Productivity Tool

Unicalc, by Lattice, may take a part in the history of computing as the only software package to never recognize the mouse. That aside, what we have is a rather good spreadsheet with a few of the attributes of Lotus 1-2-3.

These attributes are in the way options and sub-options are displayed and selected (at bottom of the screen rather than the top) and in the rudimentary database functions. The graphing capabilities are more like VisiCalc than Lotus, appearing in a regular column and formed by horizontal rows of asterisks. This is good enough for some purposes, but a long way from earning Unicalc the "Lotus-like" description that appeared in some preliminary literature.

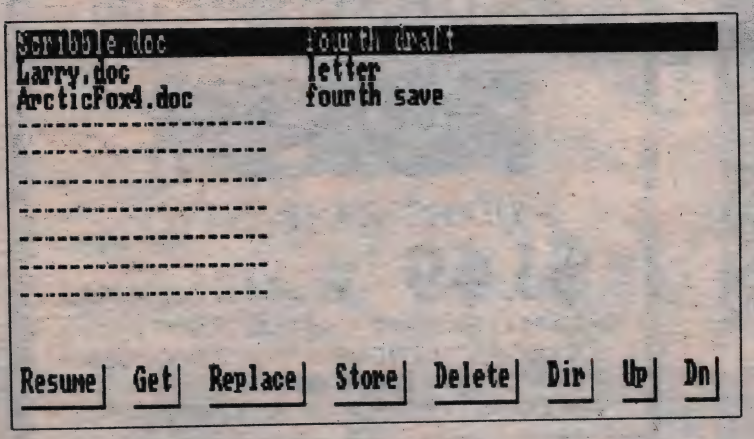
Being installed on a Workbench disk, Unicalc can be copied and can be installed on a hard disk, always a plus factor with productivity software. It is also possible to remove the Workbench files from your working copy and thus initiate Unicalc from CLI. Doing this frees more memory, allowing larger worksheets and will be of benefit to power users.

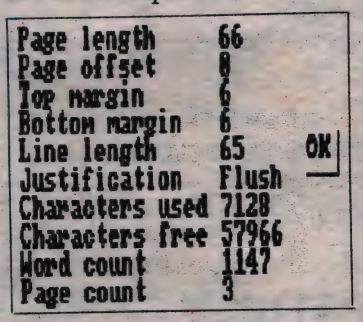
Because it requires 512K, Unicalc will work only on an Amiga with expanded memory and there will produce worksheets as large as 8192 rows by 256 columns—large enough for almost anything you'd care to do.

The documentation is a slim hardcover volume, 48 pages of small type, but it is clear and concise. Besides this, Unicalc has the most extensive on-screen tutorial we've ever seen; several screens of information on every aspect of the program, along with listings of special keys and all of the "@" formulas.

Below the actual worksheet, a status line keeps you in-

continued on page 137





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by Ervin Bobo

There are those of us who are forever daunted by anything resembling a financial package, even one that limits itself to personal finances. If we can be persuaded to use one, we tend to doubt the answers given and, at first opportunity, give the same problems to our accountant, pay the fee and accept his answers without question. So why bother with something that calls itself a financial cookbook?

Because it is easy to use and because it can be trusted.

Quite wisely, Electronic Arts decided to open the COOKBOOK with the Intuition Interface rather than CLI. The natural reaction of an Amiga user when presented with a screen of icons is, "I can handle this." Quite right. Once the program has been booted from Kickstart 1.1 and is up-and-running, pull-down menus display your many choices and the financial recipes are such that you simply fill in a few blanks.

Among those icons present is Preferences. Set it, especially for the parameters of your printer, and save them. Printing your recipes and your data is then a simple matter of clicking on the Print pull-down menu.

One word of warning is called for here: Although COOKBOOK uses Intuition and appears to be installed on Workbench, it is a hollow version of Workbench. The Systems Drawer is present and, within it, the Diskcopy program, but it has been disabled and FINANCIAL COOKBOOK is a prisoner to the usual copy protection schemes of Electronic Arts.

While it may be fine to protect a game, a protected financial or accounting package that has been trashed will keep you from accessing your data while you wait for the publishing company to send you a replacement - unless you're desperate enough to go buy another one - and no matter how quickly a replacement may arrive, it is never soon enough.

COOKBOOK is a package you'll come to rely on, and it is not just another home budgeting program. It will not tell you how much money is left for pizza and beer after you've budgeted for gas, electricity and laundry. Nor is it

continued on page 134

Star Introduces NL-10 Dot Matrix Printer

Star Micronics has introduced the NL-10, its newest popularly priced 9 wire dot matrix desktop printer. Designed for professional, small office and home use, the NL-10 prints high-speed draft quality at 120 cps and superior near letter quality at 30 cps.

The NL-10 features plug-in interface cartridges which ensure compatibility with most personal computers. Interface cartridges are available for the IBM PC and PC compatibles, Commodore 64 and 128 and standard parallel computers. An Apple IIc cartridge and an RS-232C serial interface cartridge will soon be available. The NL-10 features the latest Star design advances recently introduced in the letter quality, high-speed NB-15. With the NL-10, a push-button-activated front panel controls eleven format and print functions, including three print pitch selections, type style, print mode, margin settings and forward and reverse micro paper feed. To print documents, the operator need only press the appropriate buttons, eliminating the need to adjust DIP switches or give software directives.

Ease-of-use features also include improved paper handling. A standard adjustable rear tractor feed provides a quick tear feature that reduces paper waste and saves time realigning paper between jobs. The NL-10 can also automatically feed a single sheet of paper into position ready to print. Optional, automatic single and dual bin, cut sheet feeders are available to meet high volume printing demands. In addition, the NL-10 has a bi-directional tractor feed for improved graphics quality. Ribbon cartridges snap-in easily.

"The increasing sophistication of home and professional operators and their high expectations for print quality and ease-of-use features, will lead professionals to look for a printer like the NL-10 — one they can fully rely on to accomplish their daily printing tasks," notes Tom Bongiorno, Director of Marketing. "Ease-of-use and high quality are designed into the NL-10 making 'on-demand' desktop printing truly easy, reliable and, of course, very affordable."

The NL-10 sells for $319 and the interface cartridge at $60 for each computer.

For more information contact Star Micronics, 200 Park Avenue, Suite 3510, New York, NY 10166; (212) 986-6770. ●

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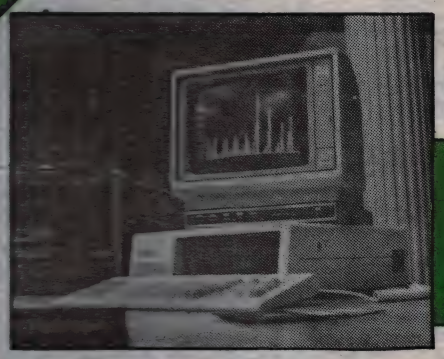

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Write-once Laser Disc continued from page 120

LitePac 330 optical discs will be available for substantially less than $200 each.

The enormous capacity of this unit suggests it for environments where permanent records of large volumes of transactional data are frequently required; in places where a substantial body of essentially static data is subject to frequent reference; and where access to large volumes of data would be impractical or significantly more expensive using traditional data storage devices.

The portability of the BP-100+ encourages the extension of its benefits to multiple PCs at single or multiple sites. Each PC requires only an inexpensive I/O extender. The BP-100+ weighs only six pounds and can fit within a standard briefcase. It comes complete with Survival software, a collection of utilities for simplified backup and restore operations, assembled under a sensible menu structure and graced with on-line help.

For additional information contact Portable Solutions, Inc., 1701 Directors Boulevard, Suite 250, Austin, TX 78744; (512) 448-4965.

Mention that you read about it in *Computer Shopper*. ●

Thoughtware To Produce High Tech Greeting Cards

Thoughtware, Inc. has announced recently the formation of Hi Tech Expressions, a division of Thoughtware, Inc., that publishes computer disk greeting cards, card makers and supplies. The company's products feature animated scenes with a musical message and computer printouts. Hi Tech Expressions will be based in Coconut Grove, Florida.

Hi Tech Expressions was founded as a result of the extraordinary sales success of the "Jingle Disk". The $9.95 computer disk Christmas card, introduced during the 1985 holiday season by Thoughtware, became the nation's best-selling software product last Christmas.

Henry A. Kaplan, president of Hi Tech Expressions, said, "The estimated 15 million personal computer owners are using their computers for everything from composing music and shopping-at-home to sending letters. We found that they are also ready to say 'Merry Christmas' or 'Happy Birthday' with them." Analysts forecast that there will be over 21 million personal computers in use by the end of this year.

The prototype for the Jingle Disk was developed in 1984 as a promotional piece for Thoughtware's corporate customers and distributors. In July of 1985, work began on the development and distribution of the Jingle Disk, which featured four minutes of holiday scenes set to the synthesized notes of various Christmas carols and included a holiday card-maker.

The Jingle Disk was widely distributed and successfully sold through computer and software stores, mass merchandisers, toy, book and department stores. "The Jingle Disk proved that people who own computers are not immune to having a bit of fun with their machines," Kaplan said. "We were surprised at how eager people were to chip away at the cold computer image with a singing, dancing disk."

Hi Tech Expressions' first products will be CardWare, ($9.95) and WareWithAll ($14.95). CardWare, a personalized computer-based birthday card and card-maker, enables the computer to play happy birthday with accompanying animated scenes on the screen. The user can also choose from a selection of program graphics to print out all-occasion cards or an animated greeting on disk. WareWithAll is a supply package that includes decorated paper, envelopes, disk, labels, stickers and markers for creating cards with a computer. These supplies can be used to create colorful greeting cards, banners, party goods and animated disks using Hi Tech Expressions software or other creative software programs.

Other products to be shipped in the second quarter include HeartWare ($9.95), a "love note" greeting disk and card maker, and PartyWare ($14.95), a design kit for party decorations, invitations and greeting cards complete with a formatted data base for friends and events. PartyWare will also take part in the celebration with computer printed games like trivia, charades, pin the tail on the donkey, and others.

The disks will run on IBM PCs and compatibles, the Apple II family, the Commodore 64 and 128 and the Atari 400, 800, 800XL, 1200XL and 130XE.

Hi Tech Expressions shipped its first products in March. The products will be distributed worldwide through many of the same channels as the Jingle Disk.

For further information contact Hi Tech Expressions, 2699 South Bayshore Drive, Suite 1000A, Coconut Grove, Fl. 33133, 305/854-2318, 1-800/848-9273.

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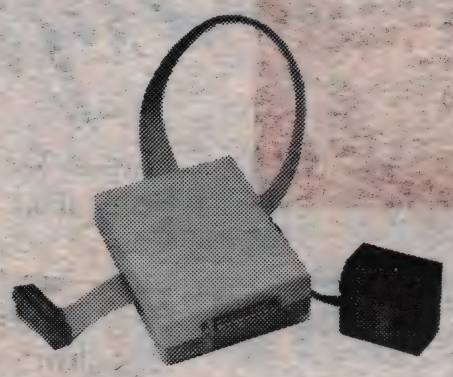

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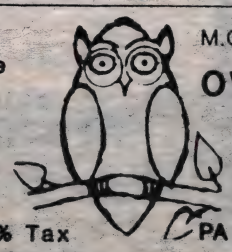

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Analyze!
continued from page 125

a matter of fact, during the writing of part of this review, Analyze! co-existed in memory with my word processor and I was able to flip back and forth between them.

For purposes of this review, Analyze! was compared in some basic speed tests with another program, which will be referred to as "Spreadsheet U."

The first test involved replicating a formula through 1,000 cells of the spreadsheet.

Next, a recalculation of these cells was done and the results timed. While Analyze! comes up in auto recalc mode, it can be set to manual recalc by a menu item. The advantage here is that, when entering items into a large spreadsheet, one doesn't have to wait on a recalculation after each entry — it can be forced whenever convenient by a single keystroke.

No difference was noted between manual and automatic recalc times with either program. However, when working with a small test spreadsheet in auto calc mode, Analyze! *seemed* to be faster. This, however, is illusionary, as the tests bear out, and the illusion is caused by the fact that Analyze! writes to the screen much faster than the other program.

Next, a number was placed in cell A10. Then, a formula to manipulate this number was placed in cell IV8192. Thus, the time to make a calculation which spanned almost the entire range of the spreadsheet program could be determined.

TEST	ANALYZE	SPREADSHEET U
Replicate thru 1,000 cells	0:19.3	0:17.1
Recalculate 1,000 cells	2:17	0:10.9
Recalc A10 to IV8192	0:00.6	0:58

As you can see, Analyze! was a real standout compared to the other program in only one category, recalculating from cell A10 to IV8192.

This is apparently due to the sparse matrix technology used in Analyze!.

This allows the program to ignore cells which are empty, making widely separated calculations much, much faster.

While Analyze! fared poorly on the 1,000 cell recalculation compared to the other spreadsheet, this is not to say that it should be rejected for this reason.

As noted earlier, Analyze! prints to the Amiga screen much faster than the other spreadsheet. This would undoubtedly give faster throughput when working on a normally sized spreadsheet. After all, how often does one do a thousand calculations, each of which are dependent on the preceding one?

Some may be disappointed that Analyze! does not try to be a "do-everything" program.

I have always believed that a spreadsheet should act like a spreadsheet, and not try to be a database, word processor, or whatever.

Analyze! does not do databases or graphs, but it handles the job of being a spreadsheet very well. Documentation is adequate and ease of use coupled with ease of learning should make this a satisfactory spreadsheet for beginner and old hand alike.

Analyze! comes on an unprotected disk for $99.

For additonal information, contact Micro-Systems Software, Inc., 4301-18 Oak Circle, Boca Raton, FL 33431 or your local Amiga software dealer. ●

Broderbund Announces Products For The Commodore

Two of Broderbund's best-selling products for the Apple II computers — The Print Shop Companion and Bank Street Speller — now are available for the Commodore 64/128 computers.

The Print Shop Companion, which hit the best seller charts within two weeks of its release in November, 1985, expands the capabilities of The Print Shop by adding a variety of new features and graphic elements.

The Print Shop lets users write, design and print their own signs, letterhead, banners and greeting cards. With the Companion, users can create weekly and monthly custom calendars, personalized borders and fonts with easy-to-use border and font editors, fantastic creatures with the creature maker and dozens of different tile patterns with tile magic.

The Print Shop Companion also offers the ability to edit and create new Print Shop graphics. Images can be filled in with patterns, mirrored, moved, inverted or flipped over automatically. Text can be added to graphics; lines, boxes and ovals can be drawn instantly. And the program includes 50 original border designs, 12 new fonts and 20 new graphics.

Users of the best-selling Bank Street Writer word processing program now can write error-free documents with the help of Bank Street Speller. The program finds and highlights spelling and typographical errors and suggests correct spellings. It also speeds up the time-consuming job of proofreading long documents.

Bank Street Speller includes an electronic dictionary with more than 31,000 words and users can create their own customized dictionaries.

The Print Shop Companion, priced at $34.95, requires The Print Shop, a printer and a disk drive. Bank Street Speller, with a suggested retail price of $49.95, requires Bank Street Writer.

For more information, contact Broderbund Software Inc., 17 Paul Drive, San Rafael, California 94903-2101; (415) 479-1170.

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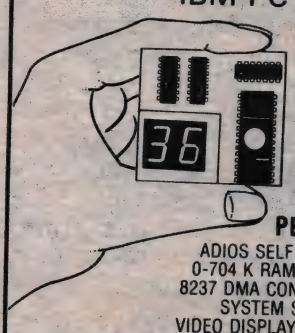

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CABLES

Printer Parallel..7.50
Floppy disk cable 6.00
Winchester cable..6.50
Modem Cable.....9.00

MF384 Multi function

Parallel,serial,game port, Ram disk, clock Spooler.....$ 85

CPU UPGRADES

V20...4.77 Mhz $ 12
8087.....$ 130
80287.....$ 175

XT WINCHESTER Controller Cards

Half Card.....$ 115
Western Digital..$ 125

Financial Cookbook
continued from page 129

the kind of program that requires entry of day-to-day expenditures and income on a diligent schedule.

Instead, COOKBOOK is a program that will stay on your shelf most of the time, being put into the computer only occasionally, as needed: then, the thirty-two recipes will guide you in selecting the type of savings or investment to give you the best return; the amount of life insurance needed to keep your family in style; whether to buy or lease or repair an automobile; whether to rent or buy a home, and much more.

Clearly, these are questions of some weight and importance to your future financial position even though they may not be asked every day, yet they are matters that COOKBOOK, because it is easy to use, allows you to handle with dispatch and on an occasional basis.

Your first selection should be Recipe One: Understanding Marginal Tax Rates, for this is a figure that will recur in every other recipe. You'll be paying taxes on every dollar of interest earned and, in order to give you a "bottom line" that has meaning, COOKBOOK will take this into account. Simply fill in your taxable earnings and taxes paid, both federal and state, from your copy of your last tax returns and the marginal tax rate is computed for you.

The resulting figure, as well as current inflation rate and current interest drawn on savings, can then be saved on the Profile recipe. You can save them permanently to disk or use them temporarily; either way, they will be automatically inserted in each succeeding recipe.

Profile is just what it sounds like: a template that is a financial self-portrait. Here you enter not only your marginal tax rate but also the annual percentage rate on your savings, number of compounding periods, your mortgage interest rate and the current inflation rate. Saving these items of information to the master disk allows you to call them up quickly and easily as the various recipes call for those items and, like a template, they fit in their proper places within the formula.

While you are permitted to save Preferences and Profile choices to the master disk, everything else should go on a data disk and there is a bit more to creating one than simply formatting a blank disk. After formatting, and naming it Data Disk.1, open its window and drag the fin.data icon from the COOKBOOK disk to the data disk. Though such a move is not common, having the fin.data files on your data disk make it much easier to click on the Save As... or Open menus and to use the file requester that subsequently appears.

To get accurate results from COOKBOOK, you'll need accurate figures. As an example, in the recipe for refinancing your home, you'll want to have at hand the amount currently mortgaged; interest rate; rate of inflation; new interest rate, etc. These are, of course, figures easily obtained: most of them on the financial papers in your files.

You enter the figures in a window that states the problem, then use your mouse to point to a sub-window that says "Compute." Immediately, a second window opens, restating the problem and your input, showing its work, and giving you a "bottom line." For those of us who have used other computers, and have become accustomed to waiting while floppy disk drives moaned and groaned an answer, the speed with which the Amiga presents a final tally may leave you with the feeling that you didn't get your money's worth. After all, you simply clicked a button and the answer was there: how much consideration could it really have given your needs?

In the Amiga, FINANCIAL COOKBOOK resides entirely in RAM and this accounts for the sometimes zero delay between problem and solution. Because it is RAM-based, Electronic Arts recommends that Amiga users with only 25k unplug their second disk drive in order to free memory. This done, it is possible to have two input and two output windows open simultaneously - thus multitasking your finances. With 512k, no such limitations apply. Even more windows can be opened, to the point of your personal confusion threshold, and these windows can be moved, re-sized, and flipped into background or foreground as needed.

Knowing this, you can see that you received more than your money's worth, for the Amiga saved you time.

Although COOKBOOK makes use of such arcane accounting procedures as Net Present Value, Internal Rate or Return and others, you won't find them mentioned here.

continued on page 145

```
 14 An IRA's Future Value
Finds the future value of regular IRA
deposits

          Yearly deposit  $ 5000
       Years to analyze     10
    Initial IRA balance  $ 5000
   Interest rate earned  % 8
    Compounding periods    365
         Inflation rate  % 4

Future balance ........... $   84697

 YR DEPOSITED    BALANCE    BUY PWR
  1 $    10000 $    10416 $    10016
  2 $    15000 $    16284 $    15055
  3 $    20000 $    22640 $    20127
  4 $    25000 $    29525 $    25238
  5 $    30000 $    36984 $    30398
  6 $    35000 $    45064 $    35615
  7 $    40000 $    53817 $    40896
  8 $    45000 $    63299 $    46252
  9 $    50000 $    73570 $    51689
 10 $    55000 $    84697 $    57218
    --------- --------- ---------
TOT $    55000 $   84697 $    57218
```


REF#	Item	Manufacturer	Price
06	Font Cartridge Neo	Neo	.24.95
C1	DataSaver(4000) Power Backup	DataSaver	369.95
07	ABC Serial Switch Box	Generic	79.95
05	Keyboard Dustcover	Generic	9.95
	Omni Reader	Oberon Int.	199.95
	Parallel Printer Cable (5ft. D25 to Centronics)	Accucable	7.95
06	Ram Cartridge Neo	Neo	24.95
05	Non Glare Screen Covers	Generic	5.95
07	Acco Anti-glare CRT filter	Acco	11.95
	Anadex Rapid Scribe Printer	Anadex	1200.00
	Anadex Silent Scribe Printer	Anadex	900.00
02	Apple IIe Controller Card	Apple	39.95
02	Apple Disk Interface Card	Apple	29.95
02	Mouse (Macintosh)	Apple	39.95
C16	Apple IIc Monitor and Stand	Apple	179.95
08	Macintosh External Disk Drive	Apple	249.95
02	Apple IIe Hand Controllers	Apple	12.95
02	Apple IIe Printer Cable	Apple	9.95
09	Light Pen	Apple	24.95
04	Imageswriter Ass. Kit (IIc)	Apple	12.95
02	120V Power Supply	Apple	59.95
04	Numeric Keypad	Apple	72.95
03	Communication interface card	Apple	35.95
C18	Apple IIe Computer	Apple	399.95
04	Printer interface Card	Apple	49.95
02	Parrellel Interface	Apple	35.95
05	Apple Motherboard	Apple	89.95
06	Macintosh Motherboard (512k)	Apple	225.00
C23	Disk Drive (Apple II)	Apple	79.95
02	Imagewriter Acc. Kit (Mac)	Apple	12.95
13	Atari SF Disk Drive	Atari	89.95
C21	Global Power Supply	C4089	139.95
03	Cardco Printer interface(Atari)	Cardco	35.95
03	Cardo+ Interface (C64)	Cardco	49.95
03	Cardco Printer interface(Vic-20)	Cardco	35.95
06	Manual/Acc. Kit Citizen D120	Citizen	9.95
C13	Compaq Portable Monitor	Compaq	124.95
C5	Digital VT-220 Monitor	Digital	179.00
13	Franklin Ace 10 Disk Drive	Franklin Ace	29.95
09	212A/ED Modem	GDC	129.95
05	Expansion Card (Wang)	Generic	69.95
01	Hayes Smartmodem 1200B	Hayes	249.00
09	Joystick (used)	IBM	12.95
05	Mono/Graphics/Printer Adapter	IBM Compat.	49.95
05	384k Multifunction Board	IBM Compat.	125.95
C15	Link-125 Viedo Display Terminal	Link	495.95
02	Neo Ext. Hard Drive 10mg.	Neo	495.00
C20	Oakleaf Series F	Oakleaf	5995.95
13	Penril 1200 Modem	Penril	159.95
C12	Primages LQ Printer (90cpi)	Primages	795.95
07	PC Jr. Memory Expansion	Quadram	129.95
01	Quadram Multifunction(384k)	Quadram	219.95
01	Quadram Microfazer	Quadram	204.95
C14	Qume QVT-101 Video Terminal	Qume	215.95
C19	Glare Guard	Size H	45.95
C22	Star SR-10 Sheetfeeder	Sr-10	149.95
05	TI Dsk DR. Controller Card	TI	155.95
C3	TI Tractor/850	TI	24.95
C6	TI Disk Drive	TI	65.95
C4	TI Disk Drive	TI	65.95
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C9	TI Disk Drive	TI	65.95
C8	TI Professional Computer(128k)	TI	1099.00
13	TI Memory Exp. Card 32x8	TI	79.95
C3	TI MS DOS 2.1	TI	29.95
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08	TI Joysticks (2)	TI	14.95
03	Joystick adapter	TRS80	29.95
09	Full Height Disk Drive	TRS80	149.95
09	Full Height Disk Drives	Tandon	40.45
04	Tandy 1000 Hard Dsk. Cont. Card	Tandy	75.95
C17	Tandy Digitizer Pad GT2000	Tandy	205.95
03	Ser.to Par. Converter(DT100)	Tandy	89.95
01	Tandy 300bps modem	Tandy	79.95
12	Maestro Multifunction (AT)	Tecmar	249.95
10	PC-Mate (Multifunction Card)	Tecmar	79.95
C7	Televiedo 922 Data Termnal	Televiedo	525.95
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Parallel printer cable	(length = 6 foot)	$ 012
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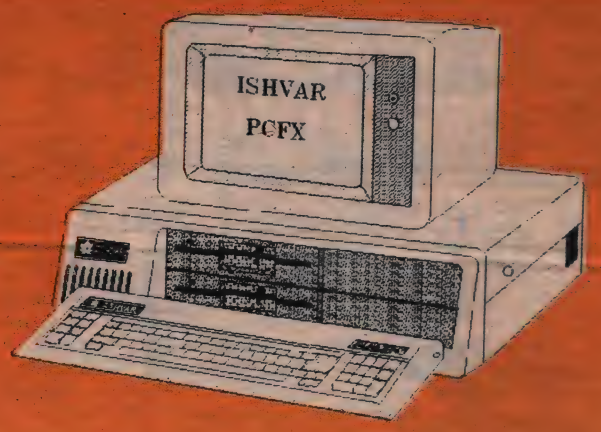
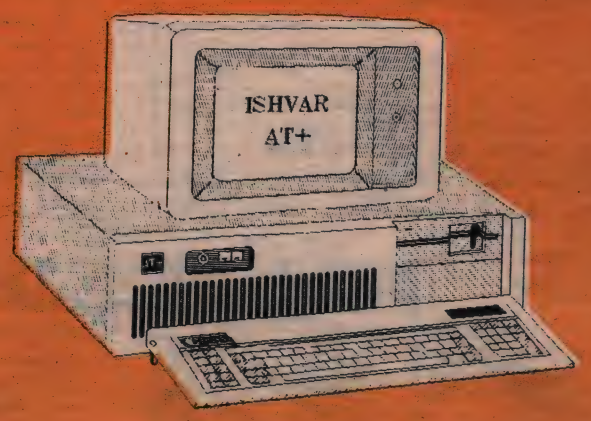
* Over 95% of this ad has been type-set & printed using the LePrint software and a Citizen MSP-10 printer on the AT+. (Copy was reduced slightly)





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Firebird Licensees, Incorporated has released The Music System for Commodore 64/128 computers in two versions, concise and advanced, through its U.S. headquarters in Ramsey, New Jersey. Firebird is a wholly-owned subsidiary of British Telecommunications PLC. (U.K.).

The standard (concise) version of The Music System provides users with a comprehensive music development package for the Commodore 64 computer or the new Commodore 128 in C-64 emulation mode. The Music System allows full sonic tailoring of the computer's SID chip, multivoicing, mono or polyphonic modes, full editing and recording, storage and playback of sound settings and compositions. The standard version of The Music System carries a suggested retail price of $39.95.

Also available is an advanced version of The Music System which adds several enhanced features to those found on the standard version plus MIDI (Musical Instrument Digital Interface) capabilities when used with either S.I.E.L. or Passport Designs MIDI interfaces. Additionally, The Advanced Music System permits linking and editing of sequences, control of six MIDI tracks or devices simultaneously, automatic transpositions, automatic tempo conforming/correcting to MIDI drum machines and a host of other features including the ability to print sheet music on an optional line printer. The Advanced Music System has a suggested retail price of $79.95, and purchasers of the standard version may upgrade to the advanced version at nominal cost if they so desire.

For additional information contact Firebird, P.O. Box 49, Ramsey, NJ 07446; (201) 934-7373.

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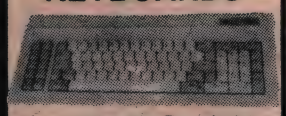

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SKYFOX/ARCTICFOX

by Ervin Bobo

We have combined SKYFOX and ARCTICFOX into one review because they are back-to-back releases of arcade games from Electonic Arts; because they are the first available games to take advantage of the Amiga's capacity for stereo sound; and because they offer an excellent opportunity to compare a game adapted to the Amiga with one written especially for that machine.

In SKYFOX, you are the pilot of a far-future aircraft, the only superweapon left functioning after alien raids against your colonial planet. Armed with a laser canon as well as heat-seeking and guided missiles, you must try to destroy the alien forces and, at the same time, protect the remaining colonies and colonists.

Because the enemy is mounting a multiple-pronged attack with both air and ground forces, it is all too easy for you to become involved in an air battle while tanks are wiping out the colonies, or vice versa. As a result, you'll not only have to use arcade-developed reflexes, you'll have to think about what you're doing.

Originally written for the Apple computer, SKYFOX was later adapted to the Commodore 64 and from there was rewritten for the Amiga. Whereas it once ran in 64K of memory (though requiring disk access at times), it now requires 512K but resides entirely in RAM, making switching among the multiple screens much faster. A good deal of that extra RAM is probably used for the sound routines, although graphics have also been improved. This is good, since sound adds another dimension to such games and with the stereo standards being set by SKYFOX and ARCTICFOX we are likely to see the traditional arcade games redefined.

Your mission, selected from fifteen scenarios at one of five skill levels, begins in the briefing room where a satellite radar map shows you the composition and placement of the alien force you have chosen to challenge. The scenarios range from truncated training missions against a single force to a full-scale mission against combined air and ground forces. Once you have the placement fixed firmly in mind, a click of the joystick (and we recommend the stick over the mouse) takes you to the launch pad.

Your view is out the cockpit and in the foreground a control panel apprises you of time coordinates, armaments remaining, speed and altitude. A computer screen in the center tells you to launch when ready and you sit listening to the building whine of the powerful engines, then click the fire button again.

With a roar, you race through the launch tunnel and then suddenly find yourself in open air space and coming under fire. In a single-enemy scenario, you would find yourself at a high altitude if you'd chosen planes and at a low altitude if you'd chosen tanks. In

continued on page 142

Amiga Workbench continued from page 128

formed of the value of any cell highlighted by the cursor. Just under this is a prompter line, showing the options available at this time. Move through them by means of the cursor keys and hit Return to execute. Depending on the command selected, you may be presented with a sub-menu of options, also displayed on the command line.

Numeric entry into cells is straightforward. It may be done from the number row of keys or from the keypad. For the benefit of users who may be accustomed to using the IBM PC, Lattice has also made it possible to use the SHIFTed keypad to produce functions such as page-up, page-down, Home, End, etc.

To use the database function, you must set up field names in column one. Unicalc treats these as labels and, in our example, we would use employee surnames. Subsequent columns could include any alphanumeric information such as address, zip, rate of pay, etc. Sorts and extracts may be done, always working on the field name. Should you wish to call up every entry within a specific zip code, you must leave a space in the output range for the name, no matter if all you really care about is the rate of pay.

You'll probably find Unicalc less exciting than a spreadsheet utilizing the mouse and pull-down menus and other Amiga-specific features, but if you look closely you'll find it is a powerful tool, devoid of bells and whistles but with a bit of built-in familiarity for those who have used VisiCalc or Lotus.

It is available from Lattice, Inc., P.O. Box 3072, Glen Ellyn, Illinois 60138, and at a suggested list of $99.95.

And now we can turn to the Amiga...

...As An Idea Processor

Upon first seeing Flow, my question was "Who needs it?" After using it, I'm convinced I need it.

At some point during your school years, you should have learned how to make an outline of a chapter, an entire book, a talk you had to give—something, anyway. Flow takes away the paper and pencil you learned to use for outlines and replaces them with a disk and an Amiga computer.

So, really, isn't it easier to just dot down notes on a piece of scrap paper, rather than fire up the computer, wait while the program loads and then try to recapture the thought? Isn't this really on the same level as using the computer to balance your checkbook when you could be using a five dollar calculator?

No. Not if you're at all serious about saving your ideas, arranging and rearranging them into a coherent whole, printing them out in a very neat form and saving them in such a way that you can recall ideas and topics with a few clicks of the mouse button.

For several years, ThinkTank has been available for the IBM and the 512K Macintosh. The idea was good enough that New Horizons Software developed a similar format for Flow. Here, however, use of the mouse and pulldown menus helps speed the processing of your ideas with minimal interruptions of the—well, the flow—of your creative juices.

Using Flow is easy and you should be up and running after only a first reading of the slim documentations manual. Click on the Project menu and drag the cursor down to New. The screen clears and you're ready to begin. Type the heading by which you wish this outline to be identified, press return and watch the typeface turn to bold. Now hit the tab key to indent and your next line will be identified as a subheading. Or, if no subheading is required, strike Tab twice and jot your note.

When you are done and select Collapse from the SubHeadings menu, the only thing that will show on the screen is your main heading. Place the cursor on that heading and select Expand and your documents open to show all the subheadings you've written.

Put the cursor on any subheading and select Expand and the document opens to show all the notes contained with that heading. Alternatively, you could click on your main heading, select Expand All and open the entire document.

In the Examples Drawer is a file called Amiga Magazines. Open it and you'll see the names of the two magazines devoted to this computer. Click on one and select Expand and the submenus that appear list each issue published. Click on any issue and select Expand and your document now shows a complete table of contents for that issue. Although I don't intend to list my magazines with Flow, it is a valid use for anyone who needs to know quickly just where and when a particular article or program appeared.

In fact, if you remember the name of the article, you may open the file and then use the Find function to go directly to it, no matter in what issue or subheading it may appear.

Because a good portion of outlining lies in changing things until they are exactly right, Flow supports a line-by-line cut and paste function. Imagine that your high school outline had been cut into strips which you could then rearrange in any order and you'll have a good mental picture of this function.

Although I find using the mouse convenient, it should be mentioned that most functions of Flow can be accessed through keyboard commands and that there is a keyboard overlay for the function keys giving you quick access to the most common commands. (If you've ever wondered about the rectangular depression above the function keys, that's what it's for.)

Because Flow was written to a Workbench disk, it can be copied and can be installed on a hard disk. However, the Diskcopy command would not work for me. I solved the problem of making a working copy by opening a copy of Workbench and then dragging the Flow and Example icons onto it. Works great.

Flow is also made to run in residence with other programs, such as a word processor, allowing you to flip back and

continued on page 149

FEATURES

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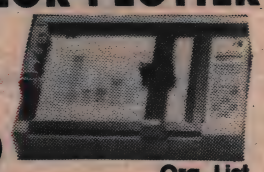

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Commodore User's View continued from page 56

available RAM and disk space. The demonstration showed the tremendous power of this package in supporting multi-field, ascending and descending progressive sorting capability. A user can, for example, enter a database for real estate and sort *progressively* to find all the houses now for sale in, say, Washington, D.C., then how many in the $50,000-$70,000 range, then those which have three bedrooms and two baths, a pool, a fireplace, a two-car garage, within one mile of an elementary school, etc., etc., you get the idea. What power! The program uses 90K and requires 512K RAM. The documentation consists of a 57 page manual giving standard instructions in database construction, as well as specific tutorials on MiAmiga File using a demo file called Listings. The program retails for $99.95 and is currently available by direct purchase only from Softwood Company, Copperstate Business Systems, 3125 E. McDowell Road, Phoenix, AZ 85008. Telephone is 602-244-9391.

A second package representing the kinds of things Amiga promises and is now beginning to deliver Gizmo, a set of productivity utilities by Digital Creations, Inc., 530 Bercut Drive, Suite F, Sacramento, CA 95814. Gizmo includes 15 separate utilities which can run simultaneously under the Amiga multi-tasking environment to provide (are you ready for this?): (1) a calendar for daily appointments, (2) a Rollodex file for names and addresses, (3) a memo pad, (4) a black book to format and print these first three outputs; (5) a terminal program for electronic mail (emulates several terminals, including DEC VT-100 and Televideo 925), (6) three calculators (scientific, financial, or programmer), (7) a graph program, (8) a hotkey program for macros, (9) Announce capability to use the Amiga speech capability, (10) a cuckoo clock for time-dependent tasking and alarming, (11) a pop-up card system for placing information in background screens, (12) a game called Superlife (to keep you from getting bored, I guess), (13) a file compression utility, (14) a tool which encryptes files, (15) a utility to display free memory locations, and (16) a tool to set the priority of tasks running simultaneously (probably needed most when running Gizmo with all these things going at once!). Ready for this??? This program is selling now for $79!

The Rest Of The Show

Except for the Amiga booth, there was not a great deal of software or hardware at the Comdex for the Commodore user. Batteries Included issued a press release indicating several new products ported for the Amiga and C-128. Among them will be a spreadsheet called BTS for the Amiga ($69.95), HomePak for the 128 similar to that for the 64 ($49.95), The Isgur Portfolio System (IPS) investment management program for Amiga ($249.95), PaperClip Elite for Amiga based on the original PaperClip ($129.95), and Degas Elite — a draw program which will interface with PaperClip Elite for Amiga ($79.95). One new product which reminded me of the value of the entrepreneur in America was a simple gadget to get high res composite video using the RGB output from the Commodore C-128 on a monochrome monitor. The Missing Link is a simple 9-pin D shell connector with a pin jack at the rear for a standard RCA connector. It translates the RGB signals to composite video, giving you 16 shades and very much improved picture resolution. If you want to make your C-128 perform in 80 columns without having to buy a RGB monitor, this simple tool will do the job. At $29.95 retail it's a bargain. Contact Active Components, 4000 W. Clearwater Ave., Kennewick, WA 99336. Telephone 509-783-5065.

Printers, Printers, Printers

Of all the surprises for me at Comdex, and there were many, the biggest had to be the prominence of the printer manufacturers. Panasonic had a very large display in the East hall. Toshiba was showing a color printer called the P351C which printed superb color, NLQ (near letter quality) at 100 CPS and draft at 288 CPS, it provides for mixing of color and monochrome within text, graphics, super- and subscripts, variable typeface, etc. There were new daisy wheel printers, better dot matrix printers, with and without color, laser printers, ink jet printers, thermal printers, and on and on. What was most interesting to me was the fact that the biggest parties were all given by the printer people — Toshiba, Okidata, etc. They were there in force, and they made it clear that they had products to offer in a very competitive way. Sure, there were the IBM clones, the modem folks (some neat low priced equipment at 1200 baud), the furniture people (more of them then I thought there would be), the software developers (many small, just beginning firms), and the publishers — there were many big guns in the computer publishing field. But I think the biggest displays were the printer people, and that was a surprise.

Atari had a very nice layout in one corner, with about 40 third-party developers showing their wares. Like Amiga, they also had an add-on MS-DOS emulator for the 520ST and 1040ST which boasted an 8088 chip and 512K RAM. Unlike the Amiga Sidecar, the Atari unit did not have a disk drive built in, nor was it 100% PC-DOS compatible. But it will surely give Amiga and Commodore something to think about, especially since there is now considerably more software available for the Atari machine then for the Amiga. Time will tell.

Final Thoughts On Comdex

This show was a special opportunity for me as an individual, not only because it was my first show (there is only one of those!), but also because of the things which happened during that week. I had a chance to meet and talk with John Dvorak and Cheryl Peterson, two of my favorite writers; and with Don and Carole Terp — editors and publishers of the *ValWorld*

continued on page 154

MTBASIC

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Inside Commodore continued from page 126

grasp incoming bits and reload the one shot timer. (For some reason, Commodore chose not to use the "serial to parallel" converting hardware shift register built into every 6522 and 6526, for the RS-232 port. That would have made the interrupt timing much less critical.)

The VIC-II DMA causes just enough of a delay to throw the faster RS-232 baud rates off. The only way to disable this is to shut off the VIC-II chip completely, blanking the screen, which has to be done exactly when timing critical events. If you run the C-128 in the 80 column fast mode, when the VIC-II is always turned off, its 1200 baud RS-232 bugs disappear.

Solutions For The "Speed Trap" Bug

There are, two practical solutions to this problem. First is to always initialize the RS-232 CIA for a continuous timer as Rick Sterling discovered. The other is to use the under documented User Selectable baud rate of the C-64's KERNAL routines. By simply using an adjusted baud rate, the timing errors can be corrected.

For example, using the C-64 PRG, the correct syntax to OPEN a channel at 1200 baud, with 8 data bits, 1 stop bit, no parity, full duplex, and a 3-line handshake would be:

```
OPEN 2,2,0,CHR$(8) + CHR$(0)
```

To specify the adjusted baud rate, use the special user selectable baud rate command and select a user baud rate of 313 (decimal). You do this by choosing the user baud rate field in the control register byte (setting the four lower bits to zero), and then sending the proper baud values as two bytes (57 low and 1 high) added to the OPEN syntax. Here is the correct syntax to OPEN the same channel above at the proper user rate values:

```
OPEN 2,2,0,CHR$(0)+ CHR$(0)
+ CHR$(57)+CHR$(1)
```

QThe VIC-20 Handshake Bug

The VIC-20 also has a bug that prevents it from properly detecting the "DSR' and "CTS" signals. The net result is that if you are doing hardware handshaking on an "X-line" interface, you can lose data that's sent to the peripheral device.

At first glance, the Commodore VIC-20 PRG doesn't seem to acknowledge this problem at all. In fact, the PRG says, (on page 256, and I quote), "...If a CTS (x-line) handshake is implemented, the VIC buffer will hold off more output until transmission is allowed by the RS-232 device."

Well, folks, while this is true of the C-64 and C-128, things don't work that way on the VIC-20!

It seems like Commodore found out that something was off on the VIC's port, but it was a little too late for the PRG (as it was being printed). Later editions of the VIC-20 PRG have a small cryptic footnote at the bottom of page 257 that says (again I quote), "Note: PB6 Clear to Send (CTS) is not implemented and must be read with a short machine language program." In other words, ignore what you've just read on page 256!

Fortunately, this problem has been clearly identified, and at least one enterprising VIC programmer has already written the short machine language program that Commodore forgot to include. Here is a letter I received from one of our readers detailing the problem and its solution:

"...I'm rather certain the RS-232 interface (described in the March and April '86 columns) will not work with the VIC-20 in the "X-line" mode, not due to any mistake of yours, but because the VIC has two errors in its KERNAL ROM at locations $EFF5 and $F513. In both cases the 6522 VIA #2 is read for certain handshake inputs instead of the VIA #1, where these lines actually appear. This is confirmed in the book, *COMPUTE!'s VIC-20 and Commodore 64 Tool Kit.*

I have a wedge program of 345 bytes called STD232-WDGE which corrects the problem and will assure proper operation of your interface... interface...

I will provide copies of this program to your readers, on cassette tape, along with the disassembled machine code listing, for $5.00.

Philip E. Lange
206 Santa Clara Ave.
Dayton, OH 45405

So, as Mr. Lange points out, the errors were simple typos in Commodore's original source code for the VIC KERNAL that got assembled and burned into a million or so ROMs. (It happens folks!) His KERNAL patch program is probably just the thing for VIC-20 users that are befuddled by this little bug, and the price is certainly reasonable.

Turning BASIC Into SEQ Files (and Back)

Q. I use the LADS assembler. I want to use my word processor (which uses only SEQ files) to edit the source code and then convert it back to BASIC text so LADS will assemble it. How can I do this without having to manually renumber all those lines?

A. This is a good question. Many people who are using the LADS, PAL, or IEA assemblers are asking it.

First, you want to create a source code file that's in SEQ text form. You can do this by writing your program, initially, with your word processor. Because you don't need line numbers in your assembler code (except for reference) and they can cause problems when you "re-crunch" the BASIC text, don't add them to the lines of your source code.

You can also convert an existing BASIC file (that's in memory) to a text file. The easiest way to do this is by opening a SEQ disk file and LISTing to it. You also have to get rid of line numbers when you're converting it. A simple "POKE 22,35" kills line numbers during a LIST (try it and see). So, to get a SEQ text file without line numbers, combine the two procedures. For example:

```
OPEN 8,8,8"filename" + ",s,w":CMD8:
POKE 22,35:LIST
```

Your disk drive will then churn away for a while until the file is created. You should then close the new SEQ file with:

```
PRINT#8 : CLOSE8
```

You now have the SEQ file, without line numbers, that can be edited freely with your word processor.

When it comes time to re-crunch the SEQuential file (or turn it back into a BASIC file that your assembler can use), you will need a SEQuential to BASic converter (also known as a re-cruncher).

Actually, for this type of use, you need a special re-cruncher that also appends new line numbers onto the SEQ lines for you. Mr. J.R. Onda has written such a program and it's included it in Listing #1 on page 126.

RUN this program with your edited SEQ file on the disk in the drive. The program will then read the SEQ text file, and input it into the computer's memory, (as though you were typing it in from the keyboard using the dynamic keyboard approach.) It will automatically add the new line numbers for you.

This program is somewhat slow, but it works. I hope to speed it up someday by appending Jim Butterfield's String Thing fast input routine to it. (If only I get the time.) Perhaps some of our readers might be interested in taking on the project. ●

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MSDOS for Amiga continued from page 55

computers. DOS 3.2 formats a 3.5 diskette to 720K, using the same track and block configuration as the Data General One laptop.

Because DOS 3.2 had to be compatible with the older 5.25 drives and machines running under older versions of DOS, Transformer reads and responds to it almost perfectly. And what it means is that besides running PCDOS programs in the 5.25 drive, you can also run DG1 software in your 3.5 drives.

Almost perfectly? That means only that Transformer emulation is so good that even the new DOS sees the 3.5 drives as 5.25 drives. Therefore, it will format only to 360K and not to 720K, even though it will read 720K disks with no trouble. It is a small price to pay for being able to buy Wordperfect and put it into the DF0 drive.

Requiring 512K of RAM, Transformer boots after Kickstart 1.1 and Workbench 1.1. Since it operates from the Intuition interface, you are presented with a window and icons—the Transformer icon looking strangely familiar—and the disk may be easily copied. You'll want to do this in order to have at least two versions on hand.

The versions will be made by clicking on the SetAT-Preferences icon. The menu that appears allows you to rename your disk drives to the A: B: C: format recognized by PCDOS and, since they can be named in any order, you'll want at least one copy that names the 5.25 drive as A: (in order to run off-the-shelf DOS and software for the IBM) and another that tags one of the 3.5 drives as A: (for running DOS 3.2 and off-the-shelf software for the Data General One). Once set, all preferences can, of course, be saved.

Other items on the menu concern video settings, allowing you to set the cursor type and display; reverse video modes for underline, high intensity or blink. Though there is a color/mono selector, color is not supported—yet. The Memory menu allows you to set the amount of memory to be addressed by PCDOS and a minimum of 64K is required. Because Transformer takes over your computer, there is no reason to save out memory for multi-tasking so you might as well go for the max: 373K.

The attachments menu is primarily for setting keyboard repeat and delay. Though you'll see choices on bell volume and pitch, mouse as cursor, lightpen and joysticks none of these are yet supported.

Finally there is the monochrome menu, allowing you to select the colors of your display. Unless you are a diehard IBM person, you do not have to settle for "green screen." You could set up an amber display or perhaps red on black—any two color combination with which you feel comfortable.

When Transformer is called up, the screen goes to your colors and a list of the options selected is displayed, along with a message asking you to insert an MSDOS disk in drive A:. Do this and the familiar DOS message appears shortly and you see the A> prompt.

Although it's just what you expected, you may find yourself feeling that something magical has happened. I did, and I'm not sure I understand why. Perhaps it was because a new world of Amiga use had opened to me; perhaps it was a slightly illicit feeling that my computer had taken me where I was not supposed to be. At any rate, the feeling was there and it persists beyond reason. If you've used an IBM or compatible computer, the slight delay in the appearance of the A> prompt will tell you that the system has slowed down: the nature of Transformer is that it receives information into a virtual IBM BIOS and then translates it into a BIOS that the Amiga can understand and use. Yet the slowness does not diminish the fun or the utility of using Transformer.

On the outside of the Transformer package (probably so you'll know just what you're getting into) there is a list of MSDOS programs that can be

continued on page 148

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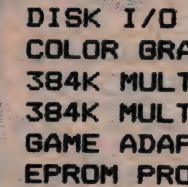

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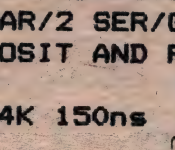

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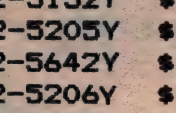

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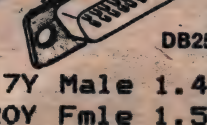

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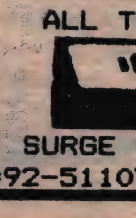

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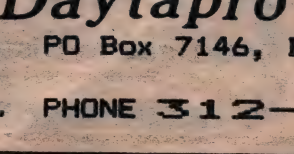

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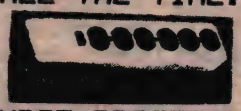

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SKYFOX/ARCTICFOX
continued from page 136

a multiple-level game, you have a choice as to whether you wish to begin at high or low level. At high, there are explosions all around you and enemy planes dart across your field of vision while puffy clouds race past you at great speed. The computer screen at the center of your console has now become an area radar display, giving you an overview of the positions of the immediate enemy. Fire our laser cannon by pressing the joystick button, arm a heat-seeking missile by pressing "H" or a guided missile by pressing "G." The computer screen gives you arming status and, if armed, the missile will be the next thing fired when you hit the button.

It is in the rapid movement of objects in your field of vision that SKYFOX is set apart from other computer flying machines. It should not be thought of as a flight simulator, for that was never the intent. You cannot roll or loop our aircraft and no matter how tight your turn, the horizon barely tilts. The intent was to create a game that looks like what we think high-speed flight should look like and in this it succeeds wonderfully.

Once you've cleared a sector of aliens, pressing "A" will engage the autopilot and take you to the next threatened sector.

Pay attention to where you are and where you've been, for there is only one base where you may land to refuel and rearm. Though the laser cannon seems never to need recharging, your missiles are limited and they are the best offense against the mother ships. If it happens that your base is destroyed, you'll be notified through the computer screen and will simply have to keep flying and fighting until the aliens get you. Vow to take a lot of them with you.

In a tank scenario, you fly at very low altitudes but, thankfully, you are unable to fly into the ground. Tanks appear from every direction and, just to confuse things a bit, the terrain is spotted with bushes that can be easily mistaken for tanks. The rule is, if it's not on your radar, it's not a tank—but the action is so fast and furious that there is not always time to check the radar.

As in the high altitude game, the autopilot will deliver you to the next sector, with the same warnings applied. And it is worthwhile to note that the autopilot cannot be engaged when you are in the face of the enemy. The only escape is to clear the sector.

When you are fatally hit, your windscreen cracks and the cockpit gradually turns red—presumably you are on fire. The screen fades from red to black and it is all over, except for reviewing the scorecard to find how many of the enemy you destroyed and how the colonists have fared.

All things considered, SKYFOX is one of the best arcade/strategy games currently available in any format. For the Amiga, graphics are as clean and as sharp as you could ever wish and the sound is almost beyond belief. Yet, as good as it is, it retains some of the qualities and compromises that were necessary on the Apple and C64 and, as such, does not "unlock the full power of the Amiga." (Are you getting sick of that phrase yet?)

We do, however, have ARCTICFOX—giving us everything SKYFOX gives and everything we wish SKYFOX had to give.

In ARCTICFOX, aliens have established a base at the South Pole. Surrounded by a force field, they are busily converting the atmosphere of Earth into a mixture of gases that is poisonous to humans. As commander of the ARCTICFOX, the most advanced tank of the day, your mission is to fight your way through the alien outposts, sieze upon a moment of electrical flux to get through the weakened force field and destroy enemy headquarters.

On the way, you'll have the hazards of the terrain—mountains and crevasses; the hazards of weather—thunderstorms and blizzards; as well as enemy tanks both light and heavy, enemy recon sleds, flyers and fighters and airborne mines. And in your spare time, try to destroy the radar stations and atmosphere converter stations.

Your hands are full, as you'll see the moment the play screen comes to life. Those hands in the foregroud, hovering over the control panel, are yours. Move your joystick and the right hand makes a corresponding move. Use a keyboard command and the left hand moves to press the proper button the control panel. The response of the on-screen hands is quick enough that it won't cost you your life, and this is only the first of several graphic surprises in store.

Because the heavy armor of the FOX precludes a windshield, your view is of a videoscreen. Surrounding it are gauges and icons that apprise you of such things as remaining oxygen, weapons status, course and coordinates, speed and time into mission. Just below the videoscreen, a radar screen gives you an overhead view of the sector you currently occupy, with the FOX indicated in blue and enemy vehicles represented by red dots.

While the stereo sound of SKYFOX provides a third dimension, it here provides a fourth, for ARCTICFOX graphics are closer to 3-D than anything you've yet seen from a home computer. As a tank approaches you and turns, it not only grows but changes in perspective. Being computer wizards, we know the image is merely being redrawn, but the Amiga makes that redrawing so smooth you'll soon forget logic and become immersed in the fantasy. In like manner, shells fired at you grow in size as they come closer; a far cry from the laser beams of old.

And if you must prove the 3-D is more than an illusion, try this: Fire a guided missile. It has a "seeing-eye" and by pressing F8 you put its view on the main video screen. Being a true guided missile, its direction of flight is controlled by the joystick and you may curve it around a mountain or over a hill to see what's on the other side.

In addition to the 3-D effect, there is logical memory: If you destory a tank at x,y coordinates and move on, the rubble will still be there when you return. If you choose to roll over that rubble, grinding the enemy into the ground, you'll note that your tank tilts convincingly and your motor revs up to take you over the obstacle.

Properly speaking, there is only one level of play in ARCTICFOX though the title screen allows you four choices. F1 is a preview: the enemy vehicles are presented one by one and a legend below the view screen informs you of their strengths and weaknesses.

F2 gives you a practice mode and, while it allows you to get the feel of the FOX with little danger to yourself, it is full of silliness—perhaps to appease those of us with short attention spans and no head for strategy. Among the sillies are your ability to bound into the air; to travel at 400 kilometers per hour; to become invisible; to use a smart bomb to annihilate every enemy in sight...While these abilities may delight

continued on page 148

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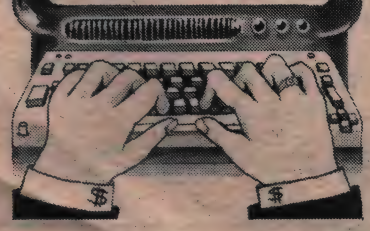

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CP/M Lives
continued from page 55

memory maps for each of the three operating modes. It's especially strong in graphics and sprite manipulation. And there are even ROM listings for the proprietary chips.

At $21.95 it might seem a bit overpriced, but it is a thick book full of useful programs and routines. Definitely a must for those who are serious about programming.

More Books

Speaking of books, Abacus software's books on the C-128 were some of the first to come out, but in all honesty I was a bit disappointed. The two *Internals* books on the C-128 and 1571 were especially disappointing as half of them were nothing more than ROM listings. At $20 a piece, I think paying $10 for the ROM listing is a real waste. For programmers looking to make use of the features hidden in the ROMs, $10 may not seem like much. For the general programmer, who probably never will have use of this information, it seems a waste of a lot of pages.

Abacus's CP/M User's Guide is a little better. While it does contain a listing of the Z-80 ROM, it doesn't take up half the book. And there is some good material. Unlike the Commodore provided manuals for the C-128, Abacus' book is at least accurate on how to create a valid boot disk. Some of the information early in the book is an insult to a computer owner's intelligence. Printers, diskette storage and other basic information is covered adequately in the C-128 manuals. While it starts out assuming the reader is a novice computerist, it converts to a highly techie book very quickly. They did have the good sense to mention the First Osborne Group, however. I think the book is overpriced though. For the material it contains, it should cost about $14.

Abacus' Tricks and Tips for the C-128, on the other hand, is a nice book with plenty of useful tips. A few of the items are essentially useless. For instance, who in their right mind would attach a Datasette to a C-128? Including machine language and BASIC programming tips, for those who are really interested in programming, this is a reasonable value. For the CP/M enthusiast, however it's a definite waste.

Programs

While Commodore CP/M software was not in evidence at the spring Comdex, I did a little private research and managed to scare up a couple more companies who are selling C-128 versions of their software.

CDE Software is offering its Checks and Balances program in C-128 format for $74.95. Besides helping you keep your checkbooks in balance, the program helps track your financial data, expenses and other information for your tax returns. Included is a ROLODEX(tm)-style address book for printing checks and maiing labels for bills. The package comes with a 30-day money back guarantee and (like most CP/M programs) is not copy protected.

Another very useful sounding program is Write-Hand Man from Poor Person Software. This $49.95 desk accessories program takes only 5K of memory to provide pop-up windows in which independent tasks are performed. These windows include two calculators (one for HEX numbers, the other a 14-digit decimal for standard computations), notepad, appointment calendar, phone book, and file and directory viewer. In addition, the manufacturer claims that you can add your own utilities.

According to Michael Porter of Bridge Software Ltd., his company will soon be distributing a C-128 version of their loan amortization package called Newint. The $95.00 program helps calculate loan values and payment schedules. He attributed his company's slow progress in development to Commodore's reluctance to provide any technical assistance. Like many others, his company was forced to wait until someone locally bought a machine that they could borrow to test their conversions on.

I have copies of these packages on the way so I hope to include short reviews of them next month. Also next month, I plan to contact some of the larger software companies and ask when they plan to start supporting the C-128.

Printer Problems

I spent some time playing with the C-128 version of NewWord and found that I was having great difficulty getting printouts to look right. I couldn't understand what was wrong. I had used an Osborne 1 version of NewWord with success and couldn't quite figure out why the 128 version was giving me difficulty. I pulled out my old 01 copy and tried it and found the same problems. In fact, every CP/M program I tried gave me garbage characters at the end of lines and various problems when attempting boldface, doublestrike or any other advanced print function. Then it finally dawned on me. Only one link in my system had been

continued on page 150

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Financial Cookbook continued from page 134

Keeping in mind the type of user for which it is intended, the manual remains clear and concise and never descends into shop talk.

And yet those concepts play a very important role in determining the bottom line. By utilizing figures on your marginal tax rate and the rate of inflation, COOKBOOK presents you with what is, in effect, two answers to each problem: the amount of real dollars realized and the actual amount in terms of today's buying power.

To state a very simple example of how this works, we use the Single Savings Deposit recipe. Assume a savings account at 4% interest, compounded daily; a marginal tax rate of 41%; and an inflation rate of 4%. Since the inflation rate nearly equals the interest rate, we have a standoff: no loss, no gain. But you did earn interest and taxes which must be paid. Therefore, although the amount of real dollars shows a healthy increase, the amount of dollars in terms of today's buying power shows a decrease. If such figures were the best you could get on savings, it would be better to spend the money now. And that's the kind of answer my wife loves.

Obviously, both your tax rate and the rate of inflation could change drastically over the course of a long-term investment. But COOKBOOK, like any other financial package or spreadsheet, works with the best information currently available and thus serves as an easy-to-use guide to the future.

Besides those recipes mentioned earlier, some other guides to your future are included in COOKBOOK: Living on your Savings; Earning Interest on T-Bills; Making Your Savings Last Forever; Living from an IRA; Yearly and Monthly Mortgage Schedules; Comparison of Variable and Fixed Rate Mortgages and much more. As a result of this comprehensive approach, most of the financial decisions you'll be making in the coming years can first be "what-if'd" on COOKBOOK. This could save you from making an investment of null value, or push you into an act you'd only vaguely considered for "someday."

Unfortunately, there is no recipe concerning the lending of money to your brother-in-law. There, you will be on your own.

As to whether the program is worth your time and money, the best example I can give is from my own experience.

Left to my own devices, I'd have thought I didn't have enough equity in my home to consider refinancing. Yet the recipe was there on the pull-down menu, only a mouse-click away, and I decided to give it a shot. The bottom line was this: If I refinance now, I'll not only gain the cost of FINANCIAL COOKBOOK, ($59.95) but also the cost of a new Oldsmobile, (none of your business). I'm going for it.

If COOKBOOK has any shortcomings, it is in the documentation. Although it is clear and consise, as noted above, it was written for a computer other than the Amiga. In their rush to market, Electronic Arts has had to use a manual written in very general terms, though it is quite clear as to what COOKBOOK is and does. Amiga specifics are to be found only on a small "quick-reference" card stuffed in a pocket behind the disk. Rather than considering this a detriment, think of it this way: it is expedient and it works. After all, were it not for their rush to market and a similar effort by Activision, there would have been no Amiga software during the first month of the computer's public existence. Even so, FINANCIAL COOKBOOK would have been worth waiting for.

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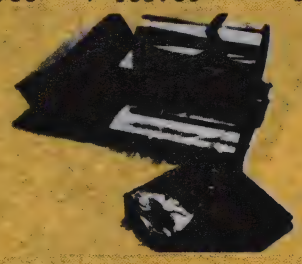

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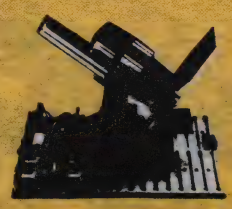

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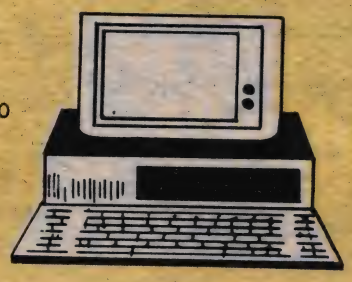

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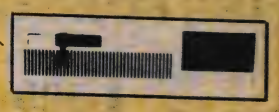

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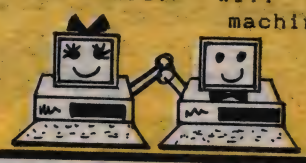

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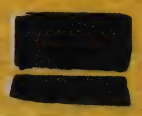

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MSDOS for Amiga continued from page 141

run: DBase III v1.1; Lotus 1-2-3 v1A; Multiplan v1.2; Multimate v3.3; Wordperfect v4.0; BPI General Ledger, Accounts Payable and Accounts Receivable vC.13; Dollars & Sense v2.0; IBM Writing Assistant v1.01; IBM Filing Assistant v1.0; PFS:Report vB; PFS:File vB. With the exception of Dollars and Sense, all are stated to run two to four times slower than they would on an IBM. D & S is four to six times slower.

Once again, the list is an understatement. Transformer will do more than advertised. Because it runs PFS:Report, there is a strong probability that it will run IBM's Reporting Assistant; the Assistant series and the PFS series being essentially the same software.

From my own experience, I suspect experimentation will cause this list to grow rapidly, though the growth will be unofficial until Commodore has completed their own testing. With that in mind, remember that the results of my testing are only to tell you what I was able to run successfully: my comments should not be construed as being binding either on the product or on Commodore.

The first test was to try to run Basica from the IBM DOS 2.1 disk. It failed, and for good reason. On the IBM, much of Basic is contained in ROM on the system board and it is this propietary part of the BIOS that forces makers of PC compatibles to find other ways of doing things. With Panasonic DOS 2.11, all of Basica is on disk and must be loaded into RAM; under this DOS, I was able to run Basica and to load and run a Basic program written on an IBM—though I must warn you that graphics and sound are not supported by Transformer and a Basic pro-

continued on page 149

SKYFOX/ARCTICFOX continued from page 142

young users, none of them are supported in the Tournament mode, and therefore they are unrelated to the real combat in your future.

In addition, the Training mode gives you an unlimited supply of ammunition and places the enemy under a handicap of stupidity. Think of this level as a shooting gallery—or perhaps a confidence course.

F3, Beginner, should probably be called advanced training. Here, the enemy is not quite so stupid, your weapons not unlimited and your armor not invincible, but still things are not as good as they are going to get at the Tournament Level.

Here, you're playing for the money. The enemy is tough and smart; your weapons are limited; your armor can be penetrated; and every hazard of terrain, weather and enemy action is going to be thrown at you—God, it's fun!

Those thunderstorms and blizzards are the result of the remaining oxygen interacting with the alien-created atmosphere and they are both random and severe. Count on either of them to scramble your radar, leaving you uncertain of enemy positions.

During a thunderstorm, the sky darkens convincingly, lightning cracks and thunder roars in stereo sound and suddenly there is the enemy, illuminated by a lightning bolt and much closer than you think. A blizzard will shut you down, the enemy and terrain visible only briefly through the blowing snow and the best tactic seems to be to button up until it passes.

Besides the obvious arcade reflexes implied in the aiming and firing of shells and missiles, ARCTICFOX also demand strategy: Should you use a missile to see the other side of that mountain, or save it to take out a radar station? Sow mines now or wait until you're in a defile where the enemy cannot avoid them? Stay close to the force field and hope for that elusive electrical flux or venture away in pursuit of an alien vehicle? Knock out the spy sled or save your shells to use against armed vehicles?

Through all of this, you have a wonderland of sound: the swish and clank of your treads

continued on page 150

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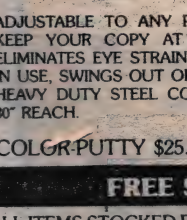

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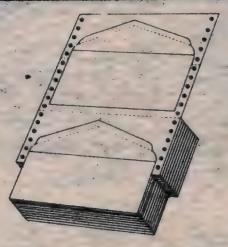

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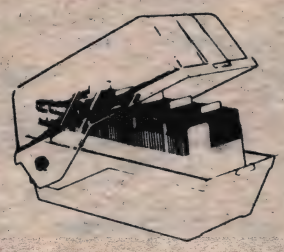

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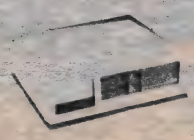

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MSDOS for Amiga
continued from page 148

gram containing routines for these would probably crash.

Bank Street Writer, in the enhanced PC version, ran well; PFS:Write ran well; Printmaster ran well in the non-graphics mode) but the "thinking..." period just before printout was long enough that you'll have plenty of time to go out for coffee; Andrew Tobias' Managing Your Money ran well; Homeword ran well; PFS:Write, Wordperfect, Mathplan Demo (all in the Data General One format) ran well; and, probably needless to say, IBM DOS 3.2 ran well.

Other surprises included Sidekick and Turbo Lightning. These programs are cached in RAM and called up as needed during the running of other programs. Each of them took their proper places and performed as advertised. However, PFS: Write was considerably slowed when running with Turbo Lightning in residence and, although I managed to run it with both Lightning and Sidekick in residence, I hadn't the heart to check it for speed.

Perhaps the greatest surprise was when I chose to try running IBM's PC Advanced Diagnostics. Once you've chosen Diagnose from the menu, this program looks deep into the computer to find what configuration you have asked it to check and reports its findings and asks for a confirmation.

Up to this point, it ran perfectly, even to reporting on the unusual configuration of three floppy drives and 373K. The actual diagnostic tests floored it however, except for two concerning the video display. Perhaps it looked beyond Transformer and was appalled.

Although it was too late to market Commodore apparently thought the market was lost, Transformer is still very much worth having and using. That you can obtain the program and the 1080 drive for less than half the original projected cost makes it the kind of bargain that seems rare in computer marketing.

You could wait for Amiga versions of Lotus 1-2-3, DBase III and the others. They will probably appear when the Amiga user base has doubled and that may be only a few months away. But if you've been using an IBM or compatible and already have these programs in MS DOS versions, then you should definitely consider the difference in cost between buying new versions of costly programs and using your older versions with the Transformer.

Certainly they will execute slower—though Commodore has promised a hardware Accelerator that will allow Transformer to duplicate and perhaps exceed standard execution speeds—but look at it this way: While Lotus, via Transformer, is crunching the numbers of a 5,000 cell worksheet, you'll have time to run to the bank and deposit the money you saved. ●

Amiga Workbench
continued from page 137

forth from one screen to another. In addition to this, should you need to do it, the Flow screen can be resized and can be moved by clicking on the Drag Bar.

Available at a suggested list price of $99.95 from New Horizons Software, P.O. Box 43167, Austin, TX 78745, Flow is a worthwhile addition to any library of productivity software and a tool I'm sure you'll find yourself using often.

Now that I've bent your ear for twenty or thirty minutes, it's time to go. Your letters and questions should be sent to me in care of *Computer Shopper* and I'm looking forward to hearing from you and learning whatever you have to share.

Next month, we'll take a look at some of the programs and information being shared on bulletin boards. Until then, so long. (Bet you thought I was going to say "Adios, Amigas." No way.) ●

CP/M Lives
continued from page 144

changed. I switched from the Cardco +G printer interface to the G-Whiz.

When using such interfaces, it is necessary to boot in 64 or 128 mode and send locking sequences to the interface to turn off some of its functions. Primarily, you need to set it to ignore line feeds. After these are sent, use the BOOT command to bring up CP/M.

Poseidon Electronics

Poseidon's Spring catalog of CP/M software is now available. Send SASE with .39 postage and $1 for your copy. They have had to raise their prices to $16 per disk, but this is still a good deal because each disk is packed with runable software. Any programs that don't run are clearly identified in the catalog and provided for the hard core hackers who may want to modify them to get them in working condition.

They have programs ranging from text editors and database managers to the two telecommunications packages (IMP and MEX) that run with the new operating system. These two programs are offered on disks with the new operating system, so they will run once they are extracted from their library files. They have programming languages like JRT Pascal and Algol, "C" language utilities, and even a BASIC compiler. For the heavy duty hackers, they even have an alternate operating system called ZCPR.

Many of the disks contain library files and a utility that makes it easy to extract the files from the library. By doing this they can fit more programs on the disk.

They edited a library of 56 Kaypro disks down to 28 working disks by removing duplicate or non-running programs. They've gotten a large library of Epson QX-10 software and hope to provide this library in their Fall catalog.

FOG

The First Osborne Group, one of the older and larger CP/M user groups, recently announced an increase in their dues; from $24 per year to $25. This fee includes a year's subscription to the *Foghorn*, a great 80-page newsletter with articles and helpful information for all CP/M users. While it started out as a group for Osborne computer owners, when they found that owners of other CP/M computers needed help, they expanded to cover first the Kaypro computers and then any other CP/M computers. They recently decided to start adding user support for MSDOS computers, as well.

As a primarily CP/M oriented club, however, they maintain a large library of CP/M public domain programs and much of it will run on C-128. If you buy more than 10 disks in one order, the disks cost $4 apiece. They are $5 apiece if less are ordered. For more details contact FOG.

So far, their newletter has had little direct coverage of the 128. Since not many 128 owners know about FOG, FOG hasn't received any articles about the 128. That should change soon, though.

Newint

Bridge Software Ltd., 316 Brick and Tile Bldg., Mason City IO 50401; (515) 424-6591.

CDE Software, Checks and Balances, 948 Tularosa Drive, Los Angeles CA 90026; (213) 661-2031.

Poor Person Software, Write-Hand Man, 3721 Starr King Circle, Palo Alto CA 94036; (415) 493-3735.

Poseidon Electronics, 103 Waverly Place, New York NY 10011; (212) 777-9515.

FOG, P.O. Box 3474, Daly City CA 94015-0474; (415) 755-2000. ●

SKYFOX/ARCTICFOX
continued from page 148

on the ice; the rumble of your turbine engine; the sound of shells being fired and missiles being launched; terrific explosions, both near and far; the pinging radar return of a spotter vehicle; the crack of lightning and the roll of thunder...I'm still not certain I've heard every sound ARCTICFOX has to offer.

So far as enjoyment of the sound is concerned, it is best if you hear it in true stereo. If you have a portable "boom box" that can be moved near your computer, great. Otherwise, there are inexpensive stereo amplifiers to be had at places such as Radio Shack and they'll do a terrific job, especially if you use them with a set of headphones to avoid disturbing the rest of the family. Though a large amplifier and giant speakers would add even more in the way of realism, it is probably best not to give your neighbors cause to think your house is under attack.

A comparison between the two FOXes being inevitable, here goes:

To my mind, the games represent extremes: SKYFOX is the state of the art of an older generation of computers and ARCTICFOX the state of the art (this month's, anyway) of computers based on the 68000 chip. It may even be too broad a statement to link ARCTICFOX with the entire new generation, since the 68000 chip of the Amiga handles graphics and sound in ways that are apparently not to be had on the Atari and Macintosh computers.

SKYFOX is two-dimensional. No matter how you fly, you'll never see more than two views of enemy aircraft: from the back or from the side; or of the enemy tanks: head-on or three-quarters profile. You cannot go over, under or around the enemy nor see his remains if he's been destroyed; you'll never get any closer to objects on the horizon; and landing at your base is simply a matter of establishing proximity and being accepted.

Obviously, there are flight simulators for the older generation of computers that have all these missing features but you'll remember that none of them come close to arcade action—and this is something SKYFOX does have, in spades.

We judge any software by how well it accomplishes its aims: SKYFOX was designed

continued on page 152

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Expansion for Z-138 continued from page 65

of insulation from each end. Solder one end of each wire to the STDP switch. Solder a spring contact to each of the remaining ends. Insert the negative lead from the switch into socket #3 of the 4-pin Molex shell connector (the socket number goes from right to left). Insert the positive lead in socket #4.

2. Prepare 2 lengths of 18" hook-up wire by stripping 1/8" insulation from each end. Solder a lead to each of the terminals of the LED. Solder spring contacts to each of the remaining leads. Insert the negative lead into socket #2 and the positive into socket #1.

3. Clamp the 2 34-pin edge card connectors to the ribbon cable making certain that the striped end goes to pin #1 of the connectors.

4. Clamp the DB-25 connector to one end of the 25-wire ribbon cable. Be certain to observe polarity. Separate wires #1,2,3, and 7 from the other end. Allow a length of at least 3". Carefully cut away the unused wires. Strip 1/8" of insulation from the four remaining wires and solder spring clips to each lead.

5. Insert the 4 spring clips into the 6-pin Molex socket as follows (sockets 1-6 go from right to left):

Wire -1 (Chassis Ground)to Socket -1
Wire -2 (Date An/RxD) to Socket -1
Wire -3 (Data Out/TxD) to Socket -3
Wire -7 (Signal Ground) to Socket -2

Take some electrical insulation tape and wrap it around 4 wires in order to prevent their tearing away from the ribbon cable. This completes the basic prep stage.

Preparing The System Disks

Since it is faster to prepare your Zenith and Ampro system disks using 2 floppy drives, I would recommend that you do so at this point in time.

Set up an Ampro disk by booting PC-DOS 3.0 in the Z-138 and type FORMAT B:/S to transfer the PC-DOS operating system to drive B:. Copy EDLIN to it, and then place it into drive A: and reboot. Place the Ampro software distribution disk into drive A: and reboot. Place the Ampro software distribution disk into drive B: and copy the file SETCON.SYS to drive A:. Do not use the terminal device driver included with Ampro's support software because SUPER DUO provides its own.

Now place the SUPER DUO distribution disk into drive B: and copy SDAMP.SYS (the main program file) and SDACOPY.EXE (the file transfer utility) to drive A:

Use EDLIN to create a CONFIG.SYS file that will initialize the Ampro's default serial port:

```
DEVICE =\SETCON.SYS B9600
DEVICE =\SDAMP.SYS
```

Since we want to prepare a disk that automatically looks for a PC computer to be connected to the other end, create an AUTOEXEC.BAT file with the following line:

```
PROMPT [AMPRO] $P$G
```

This is accomplished simply by typing:

```
COPY CON AUTOEXEC.BAT
PROMPT [AMPRO] $P$G
```

Type CTRL-Z, press <RETURN>, and your AUTOEXEC.BAT is now placed in the root directory of your PC-DOS disk.

Now we'll prepare a system disk for the Z-138. Using your master MS-DOS disk, FORMAT and copy the system files to a new disk. Copy EDLIN to the disk. Copy the SDPC.SYS and the SDCOPY.EXE files from the SUPER DUO distribution disk.

Prepare a CONFIG.SYS file that reads:

```
DEVICE =\SDPC.SYS
```

And an AUTOEXEC.BAT file with the line—

```
PROMPT <PC> $P$G
```

Let's Tear Apart The Z-138

Remove the computer's cover and disconnect the floppy drive control cable from the top drive. Mount the Ampro 186 PC-DOS board on top of the drive using a couple of washers so that component leads from the board do not come in contact with the drive.

Drill a small hole into the computer's front plate on the top right. The size will depend

continued on page 154

SKYFOX/ARCTICFOX continued from page 150

for fast and furious action, with the laws of aerodynamics suspended and perhaps ignored. This it does, and with the cleaner and sharper graphics of the Amiga and with the stereo sound it is better than ever, exceeding its original aims and becoming a valuable addition to your Amiga library.

ARCTICFOX, on the other hand, has everything—almost.

It has the stereo sound, of course, with a variety of noises sufficient to send you away from the computer with your ears ringing. It has the fast action of a good arcade game and the strategic demands of a good board game. It has three-dimensional graphics that must be seen to be believed and a game premise that stands up to logic. It has changing scenery, with solid block objects to represent hills and mountains; changing weather and terrain; and an intelligent enemy.

So what does it not have?

Only a purist would quibble about this, but there is bound to be one out there so I'll mention it first: Some of the enemy vehicles have a rather blocky appearance. The gun of an enemy tank for example, is square, looking more like a protruding railroad tie than a gun. My guess is that this quality of animation and perspective changing is easier done to a railroad tie than to a hollow cylinder and if that is the price I have to pay for all the other goodies, I'm more than willing.

More than that, I'm happy that ARCTICFOX was developed at a time when it could be designed for the Amiga, rather than being compromised to fit into a computer of smaller memory and less capability. And I can't help but hope that someday, in the not too distant future, I'll discover a brand new game for the Amiga called SKYFOX II. Until then, what we have available today with the two FOXes is the best you've ever seen.

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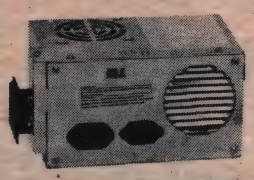

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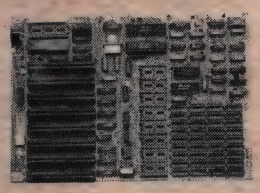

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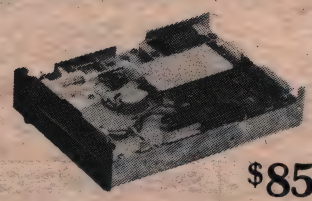

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Expanding H/Z
continued from page 65

(which is apparently common in some H/Z-150s and many other PC-compatibles), the speed-up kit pushes them beyond their limit and they fail to work.

Second, if your PC happens to be one that CAN run at the higher CPU speed, you will also find that the internal "real time clock" will be running faster, too. If you depend on that clock for any critical timing, (or even just accurate time of day) you may find this unacceptable.

There are some fixes to these problems. One method is to replace the failing CPU support chips with faster rated units (as I've mentioned in previous articles), and ignore the real time clock error. This approach will yield the most performance increase, since EVERYTHING in the computer is running faster, not just the CPU. But, it's also pretty expensive, unless you can track down the exact support chips that need to be replaced.

The "Dual Clock" Approach

Another approach is to use a more sophisticated speed-up board which uses two system "clock generators" instead of one. One clock raises the CPU frequency, while the other keeps all the support chips running at a lower rate. This type of board allows some of the slower support chips to work with a faster CPU. It also keeps the system "real time clock" accurate.

This "dual clock" approach requires more circuitry than the "brute force" boards and is usually a little more expensive. But it's also generally more reliable and software compatible. This type of speed-up board is just now starting to appear. One of the first has been Exec-PC's PC-Sprint, which I'll be reviewing this month. I plan on reviewing other speed-up boards which use this method (and, possibly, a build-it-yourself kit) in future columns.

Exec-PC's PC-Sprint

When I received this letter from one of our readers, I had already planned on reviewing Exec-PC's PC-Sprint board this month. It appears he was one step ahead of me! So, I'm printing this as an introduction to the review:

You may be interested in a speed-up kit that I find exceptionally good. It is the PC-SPRINT from Exec-PC. The kit is easy to install and works the way it should. It will run (on my Z-150) at 7.37 Mhz if 150 ns RAM chips are installed or at 6.67 Mhz if 200 ns RAMs are installed. I am using it at the 7.37 mode without any problems whatsoever. Two cautions, however:

1. When installing the crystal, bend it at a right angle so that it is parallel to the CPU board. There will be no trouble reinstalling the (Zenith) board if that is done.

2. The switch must be set for normal 4.77 Mhz operation for boot-up. Otherwise a timer interrupt error will occur during the power-up diagnostic testing.

Incidentally, the kit includes a hardware reset switch position. The cost, with an 8 Mhz V-20 chip, is $99.95 and well worth every penny.

Judson H. Spencer
New York, NY

I have found that most of what Mr. Spencer has said about the PC-Sprint board is true. I'd like to expand a little more on the specifics of the package.

What is PC-Sprint?

The Exec-PC PC-Sprint is a speed-up module/board designed to work with most PC-compatibles. It works (subject to the limitations mentioned above) on the H/Z-150 series. It increases the CPU clock rate from 4.77 Mhz to either 6.00, 6.67, or 7.37 Mhz, depending on what maximum speed your particular machine can handle.

As previously mentioned, the PC-Sprint board is one of the type designed with two clock generator chips. One speeds up the CPU, while the other generates the slower clock signals for the support chips. This also keeps the real time clock of the PC working correctly.

The circuit board itself piggybacks onto the computer's motherboard, and doesn't take up any additional "slots." The circuit board, also includes a two-position toggle switch connected by a ribbon cable. This allows you to switch the CPU operating clock frequency, while running, from "normal" (4.77 Mhz) to "high" (either 6.00, 6.67 or 7.37 Mhz) when it's pushed in one direction.

When toggled in the opposite direction, the switch initiates a hardware reset. This does the equivalent of a cold boot of your PC (even when severely crashed), without having to power down and back up again. The package also includes directions for a simple program you can run to skip power-on diagnostics when reseting the computer.

Installing PC-Sprint

Installing the PC-Sprint module is a fairly straightforward process. Included in the package is a 10-page installation guide that's clearly written and provides a surprising amount of helpful information. It won't win any awards for glossy documentation, but it's very thorough and adequate. In addition, there's a well-staffed technical support hotline phone number and online support service through Exec-PC's nationally recognized BBS.

To install the PC-Sprint board, you first remove the original 8284 clock generator chip from the CPU board (or motherboard). For some PC-compatibles, this may require removing a soldered-in clock generator chip and the installation of a DIP socket on the motherboard. This shouldn't be a problem for H/Z-150 owners, since all the CPU board chips are normally socketed.

You then install the 8284 chip into an empty DIP socket on the PC-Sprint module and plug the whole module back into the socket on the CPU board. On the H/Z-150, the PC-Sprint module makes the CPU board a tight fit to get back in properly. (As Mr. Spencer pointed out, you must bend the crystal on the board at a 90 degree angle to make it clear properly.) By exercising a little care in the handling of the board, and being patient, you can get it back in (eventually).

One point worth noting here. If you don't want to per-

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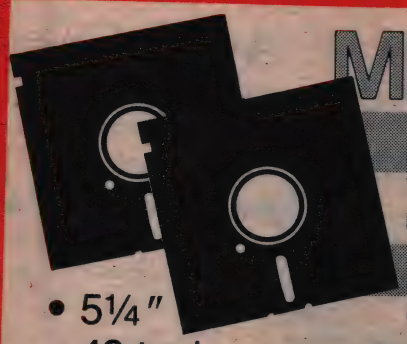

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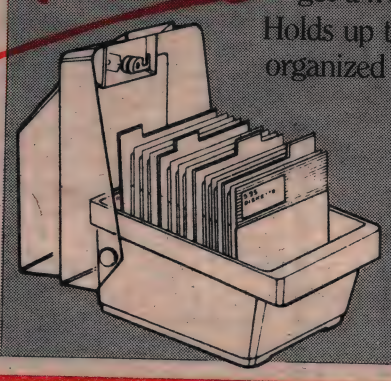

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Commodore User's View continued from page 138

GAZETTE, one of the few remaining magazines for the Epson QX series computers which is also an interest of mine.

I also had the chance to go to the (traditional, I think) prayer breakfast sponsored by QUADRAM each year for Comdex in Atlanta, and this year the guest speaker was Capt. Wally Schirra, one of the original seven astronauts for the Mercury, Gemini, and Apollo programs. I was just a kid on my first job at Kennedy Space Center when Wally flew for the first time, so it was a special thrill to participate in the breakfast. True to form, Wally gave 'em the "what for" about our space program, cheering NASA on and admonishing people to "get off NASA's back and get on with the program." What a neat way to begin the second day at Comdex. As if that weren't enough, QUADRAM also sponsored a Barbara Mandrell concert that same evening, giving tickets to Comdex participants. It was a sellout by noon Tuesday.

So what of Comdex for Spring '86? Well, if this show is any indication, the microcomputer industry is undergoing a comeback of sorts and there is plenty of life out there. The PC clones will be plentiful, and prices will probably fall farther and faster than any of us thought possible. The printer market will be filed with new, faster, and better models at lower costs. The consumer is in for a lot of bargains in printers. The modem market is maturing quickly, and costs will fall to bring 1200 baud to anyone who wants it. Can 2400 baud be far behind? I think not. Finally, software and LANs are key competition areas for 1986. Novell went so far as to provide special training classes for Comdex participants each day of the show. Amiga and Atari are going head-to-head as expected, and the home user will probably be the real winner. I loved every minute of Comdex, learned more about the broad business of microcomputers than I ever thought possible in three days, and hope to go again very soon. If you ever get a chance to go, DO IT! Bye. ●

Expansion for Z-138 continued from page 152

on the type of LED you are going to use. Your local Radio Shack store has a large assortment to choose from. Select a type that is not in a metal case, but one that slides into a rubber grommet and will fit almost flush with the front of the case. Push the LED through, making certain that the fit is snug.

Drill a hole in the backplane, insert the switch and tighten the retaining nut. Push the Molex connector onto socket J5 on the Ampro board.

Plug the DB-25 connector into the socket on the back of the Z-138. Route the cable over the top and plug the Molex end into J3 on the Ampro.

Connect the floppy drive cable from the Ampro to the drive. Take the power "Y" cable, tap into the power drive cable from the computer and connect the free ends to the drive and the Ampro board. Replace the cover.

Taking A Test Drive

One of the reasons for using PC-DOS 3.0 on the Ampro is that this version will allow auto-booting directly from a hard disk drive. If you are going to use floppy drives exclusively, then PC-DOS 2.0 will suffice. However, the extra features of 3.0 are worth the usually discounted price of $65.

As soon as you power up the computer, the LED from the Ampro should light up to indicate that the board is functioning. At the same time, the light in the top drive will go on to let you know that the system is ready to accept the disk. Simply insert your Ampro System Volume disk, close the door, and the system will boot itself in about 5 seconds.

Insert the boot disk for the Z-138. After entering the DATE/TIME sequence, the terminal emulation program will load automatically. Type ALT-P to make certain that you are in the PC Mode. Typing ALT-A will transfer control to the Ampro 186. In performing this sequence, any data displayed in the CRT in the PC mode is cleared away and data from the Ampro will appear on screen. Since the Ampro 186 does not contain its own CRT control, its files will be displayed in Monochrome if your installation of this project was in the desktop Z-148 using an RGB color monitor. This is a moot point if you are using an amber monitor with the Z-148 or the Z-138's own built in CRT.

At this particular point, you can remove the system disks from both drives and mount your program disks. If you are going to use specific programs, you should consider preparing separate system disks for each type of program. Adding these program names to your AUTOEXEC.BAT file will load them without our having to intervene every time you reboot your system.

The Ampro/Zenith/Super Duo combination can perform some interesting chores for you in a business or software development situation. For example, if you are working on spreadsheets, you can load one set of files in the Ampro drive and another set in the PC drive. When you work with database files, you can have the Ampro working in the background to sort or pull out those files you need, and then transfer the selected files to the PC and incorporate them into any document you are preparing, such as business reports or individualized mailings.

If you do program development with a software development tools compatible with the Intel 8088/8086/80186 family of chips, you can write your program on the PC, transfer it to the Ampro for assembly. Then, while the Ampro is assembling the program files at a speed of about 300% faster by virtue of its powerful 80186 CPU, you can go back to the

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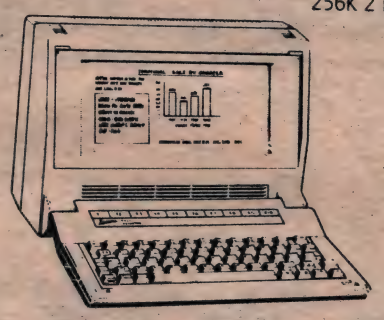

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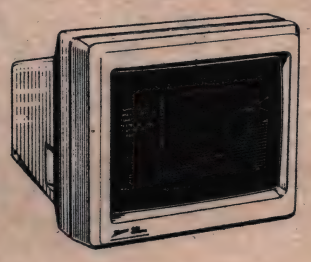

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Expanding H/Z
continued from page 153

manently deform a DIP socket on the CPU board, Exec-PC recommends that you install a low profile socket between the speed-up module and the CPU board. (They even provide extra DIP sockets with the kit.) Unfortunately, on the H/Z-150's CPU board, this is very difficult to do since you're already very cramped for space. You'll have to decide if it's worth the risk of replacing a DIP socket when and if you later want to remove the PC-Sprint board.

To finish the installation, you'll have to mount the speed selection switch in a convenient place on the back (or front) of the computer. One good place to mount the switch on the H/Z-150 might be the back filler panel of the CPU card itself. (This would require drilling a small hole for the switch on the panel.)

Crystal Selection Factors

Provided with the kit are three different crystals. One crystal provides for a 6.00 Mhz clock, another for 6.67 Mhz, and a third for 7.37 Mhz. Only one of these crystals can be installed into PC-Sprint's crystal socket at a time.

During installation of the PC-Sprint circuit board, you must determine at which speed your PC can successfully run and install the proper crystal. The easiest way to find out what the maximum speed your machine can handle is by simple trial and error. Start by using the fastest crystal provided. If it doesn't work, then switch to a lower speed and try again.

The maximum speed of your PC is based upon many factors. The speed of the RAM chips you are using is one, but not the only, consideration. Marginal CPU support chips and slow peripheral memory cards can also keep PC-Sprint from working at the highest speeds. The PC-Sprint manual includes a helpful section on understanding the "speed bottlenecks" of the typical PC system. The customer support hot line also helps PC-Sprint users with problems like this.

Exec-PC does provide some general statistics on what speeds certain machines tend to operate at. Their experience with IBM PCs shows that almost all, with just a few exceptions, can operate at the 6 Mhz clock speed. About 75% can run at 6.67 Mhz and at least half can make it to 7.37 Mhz.

From my experiences, I would say that H/Z!150s seem to have a similar distribution. The vast majority should be able to work at the 6.67 Mhz upgrade with no problems at all. It looks like many also can go to 7.37 Mhz (Mr. Spencer's did), but I don't know what percentage.

My own H/Z-150, (which wouldn't work at 6.66 Mhz using the cheaper sledge hammer approach), worked just fine at 6.67 Mhz, using the PC-Sprint board. But (at least initially), it wouldn't run at 7.37 Mhz. (The reason for this failure has since been identified and I hope to have details on how to get most stubborn H/Z-150s to run 7.37 Mhz in the next column.)

A Little More Juice For Your PC-Sprint: 8 Mhz V-20

Exec-PC recommends that if you aren't already running one, you should consider putting in an 8 Mhz V-20 along with PC-Sprint. To encourage you, they will also sell you an 8 Mhz V-20 for just $10 extra, if you order it along with your PC-Sprint.

When I installed my PC-Sprint, and I added the 8 Mhz V-20, was able to detect a measurable performance increase. According to my informal benchmarking, the combination of the 7.37 Mhz clock and the V-20 combination produces the effective throughput of a 7.96 Mhz 8088 (faster for some operations). This is close enough to the new 8 Mhz 8088s that it's not worth worrying about. At the 6.67 Mhz clock speed, the V-20 should be performing at least as well as a 7 Mhz 8088.

Performance Evaluation

After conducting several benchmark tests on the PC-Sprint/V-20 package, the performance advantage of the speed kit is clearly measureable. For processor intensive (number crunching) applications there is a constant 30-33% increase over the 4.77 Mhz 8088. This isn't a spectacular increase, but it is noticeable, especially on long calculations of a spreadsheet or other internal number crunching.

For I/O intensive operations, the speed-up varies between a 10-30% improvement. While this may surprise some people, it's to be expected. Speeding up the CPU usually will only show a dramatic increase in number crunching speed. Most I/O operations are dependent on more than just CPU speed, and there may only be modest improvements when it's increased.

A side benefit of the speeding up of the V chip is the fact that the 8-bit emulation mode is also running faster, too. This speeds up the CP/M software emulators that use the V 8-bit capability. (Quick benchmarks I ran showed an improvement proportional to the clock speed-up.)

Running The PC-Sprint Board

Once installed, the PC-Sprint becomes a transparent modification to most software. On the H/Z-150 series, (as already noted) you must boot from the slower speed setting or you will get a Interrupt Timer Error during power-on diagnostic testing. After booting, you can switch back and forth between the high and low speed at any time.

One slight limitation of the higher speed is that sometimes

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Expansion for Z-138
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PC mode to continue other work.

If at any time you have the need to exit from either the Ampro or PC mode, you can RESET each computer independently without affecting any work the other one is performing. When using SUPER DUO, you are basically creating a PC terminal for the Ampro board, instead of buying a separate terminal to work with. As such, all the PC's special function and control keys work exactly the same on the Ampro, with the exception of the CTRL-ALT-DEL reset sequence. This will only work in the PC mode. The reset switch we installed in the back of the Z-138 controls the Ampro 186. This is particularly useful if a program locks up on either system.

The latest support software package from Ampro includes an excellent public domain communication program especially written for the 186 by Jerry Haigwood called LB-COMM. Haigwood is also the operator of AMPRO ONE, one of the first independent BBS systems for Ampro Little Boards. Used in combination with SUPER DUO, you can transfer files to and from a remote BBS, or to another computer, through a modem while you work in the PC mode. The ALT-A/P keys enable you to toggle back and forth to keep track of our communications.

And, if you're a screw-ball writer like me, you can work on two articles at the same time without changing disks. I have a Parallel switch-box attached to my printer with cables running to it from the Ampro and Z-138. This enables me to use the Ampro 186 to handle my background printing chores while I continue to work with the PC. I should point out one other feature. If the Ampro is performing certain independent tasks and you need to access a disk of the PC that doesn't contain the SUPER DUO terminal drivers, you can do so without affecting what the Ampro is doing.

Wordcraft's SUPER DUO has some other nice features I won't go into at this time because I don't want to spoil the surprise. Now, you think that a terminal program of this magnitude would cost a bundle-and-a-half. So—would you believe $49?

In all fairness, there are some software restrictions not just with SUPER DUO but with the Ampro 186. All software development tools will run without problems. Software that is BIOS compatible (but does not access video memory directly) will run. Software that is character-based (it may use character graphic symbols but does not write graphics dot by dot) will work. Copy-protected programs aren't usable because the Ampro disk drive controller is not fully compatible with the controller chip in the Z-138). And if you have set up a specific program to use a specific monitor (monochrome or color), you will have to go back to your original disk to see if the program will run without specifying a particular CRT format.

Using A Winchester

Since I like to have maximum power and flexibility when I travel with my Z-138, I installed a 10-MB Xebec "Owl" in place of the top floppy drive and have the Ampro 186 board mounted on top.

The "Owl" is one of the new breed of hard disk drives that incorporate the necessary elements of a hard disk controller card and the logic required to run a disk drive all on one board mounted to the drive. This saves a lot of power when you are using it in a computer system where the power supply isn't as powerful as you would like. Power consumption is 1.25 amps at +5 volts and .75 amps at +12 volts (after a brief start-up surge of 3 amps). The standard combination of a hard disk and controller draws nearly twice the power.

If you want more storage, check into the new Seagate ST225a 20-MB drive. The drive's logic board contains the SCSI chip set from the Adaptec ACB-4000 hard disk controller. Both of these drives are self-initializing, which means that once they have been partitioned and formatted, you can boot directly from the drives power-up. The Seagate dri can operate especially fast w an interleave factor of 2 and step-rate of 75ms.

Before you can install t hard disk, you will have to pa tition and format the driv and this can only be accom lished with the floppy dri and the Ampro installed in t PC.

Most of us have an odd flo py drive cabinet or two floa ing around, so the hard di

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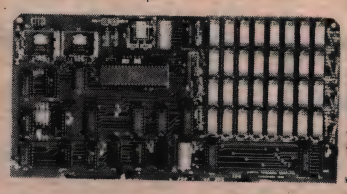

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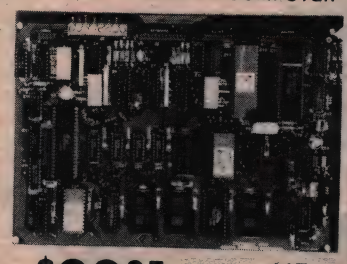

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Expanding H/Z
continued from page 156

it doesn't work correctly with software that relies on the dreaded software timing loop. A few DOS commands are affected by the speed-up, notably FORMAT, DISKCOPY, and the DOS VERIFY function. (The worst offenders, however, are usually game programs.)

Fortunately, the vast majority of software can handle the extra speed with few, or no problems. To run these programs, you simply flip the speed selection switch to the slower position and run them. When finished, switch back to the higher speed.

Summary

I found the board, installation instructions, and user support from Exec-PC all to be very good. The module comes with a 90 day limited warranty. (Exec-PC also throws in a 10 day free trial subscription to its own Shareware/Public Domain BBS system. The normal rate for their board is $20 a year. If you download much software, it can be a very reasonable fee, especially since Exec-PC maintains the board so well.)

Ordering Information

The basic PC-Sprint board, with instructions and all parts, sells for $89.95 (plus shipping). With an 8 Mhz V-20, the basic package is $99.95. Order from: Exec-PC, P.O. Box 11268, Shorewood, WI 53211; (414) 242-2173.

Additional Serial Ports For the H/Z-150

Q. I own a Z-161. Although the owner's manual denies it, DEBUG reports addresses for COM3 and COM4 serial ports. Are these ports usable?

Scott Estes
Lexington, KY

A. Well, Scott, the BIOS ROM, DOS, and the PC architecture is fundamentally configured for 2 serial ports and 3 parallel ports, maximum. Yes, you'll find a data area in the BIOS RAM space reserved for 4 serial ports (COM1 to COM4) and 4 parallel ports (LPT1 to LPT4). But those data areas do not have corresponding driver software in ROM and IO.SYS for the additional ports.

MS-DOS also written to be an expandable system and you can go beyond the normal maximum of serial ports, by extending DOS with "device driver" programs for the additional ports. Unfortunately, this is not an easy task. It requires intimate knowledge of Assembler, DOS, and the hardware port you are programming.

"There is one interesting possibility you might be interested in, though. That's the COM3 PAL package from FBE Research. This is a new PAL chip for the disk controller/serial port board on the H/Z-150/160 (but not the 158 or 148) that lets you use both the normal Zenith COM ports, in addition to an internal-type PC modem.

When using an internal modem, it's normally configured to replace either COM1 or COM2 ports. On a 150 with two serial ports, you normally "lose" one of the ports to the internal modem. With the COM3 PAL, you can get COM2 back as a new COM3 device. This effectively gives you three serial ports (counting the internal modem.)

The COM3 PAL also includes the needed device driver software to re-map the serial ports. If you are using an internal modem as one of the serial devices, then you might find this product useful.

The COM3 PAL costs $39.95 and is available from: FBE Research Co., Inc. P.O. Box 68234, Seattle, WA 98168; (206) 246-9815.

Z-MEG 150 Update

Speaking of FBE Research, it seems that they supply a PAL for the H/Z-150 that's identical to the Z-MEG 150 PAL (which I reviewed in May) called the MegaRAM-150, for $49.95. After reading my review of the Z-MEG 150 memory PAL in the May column, Mr. Dave Brockman, president of FBE, wrote a letter mentioning several key points about both PALs:

There's one point from your article that needs to be cleared up...(you mentioned) a conflict with the $A0000 bank of RAM if an EGA-type board is installed. The conflict cannot be resolved by simply putting 64K chips in the top bank of the main and overlay (as I call them) memories. This is because the memory card has bus drivers which would still be enabled when the $A0000 bank is accessed. Since the 64K chips would phantom, you would get memory data from the $90000 bank when the $A0000 bank was accessed.

To solve the EGA problem, we are developing a new MR-150 PAL which would give a 640K main memory with a 512K overlay. The overlay would start at $20000 instead of $30000 leaving the $A0000 bank clear. Our other memory PAL (the ZP640 Plus) is already this way, giving 640K or 704K depending on the jumper setting on the memory board.

D.M. Brockman
FBE Research Co., Inc.
Seattle, WA

Epson and NEC V-30 Questions

Q. Will the V-20 CP/M emulators you have mentioned in your column also work on a V-30 equipped Epson Equity III? ...Unfortunately, my Epson dealer doesn't seem to be able to help me with this.

Harry Spencer
New Brunswick, NY

A. I am answering a cautious "yes" on this. If the Epson is BIOS and video RAM compatible with the "PC standard" (and I am assuming it is based on Epson's literature) then the V-20 software emulators will run as well on a V-30 as a V-20. The real limitation is the PC-compatibility of the BIOS.

But I am a little surprised at your dealer. The 8-bit "bonus" of every V-20 and V-30 is one feature that he should be aware of and exploiting (in my opinion). Anyway, if you want to "try out" the CP/M capatibility, you can get a copy of U.S. Digital's Shareware V20-80 emulator program on an MS/PC-DOS format disk for $5.00 (see beginning of article) and try it out.

If you find it's successful, then you might consider upgrading to one of the more powerful commercial packages which includes many more features, and is more suitable for running CP/M on your machine on a regular basis. (I plan on reviewing some of the latest and best V chip CP/M emulator software in an upcoming column.)

More on the NEC V-25

Last month, I mentioned a rumor NEC is going to manufacture a newer version of the V-20 chip which will include a Z-80 mode, in addition to the 8080 emulation mode. As far as I know, that's still a rumor. I have tried to contact NEC about the subject, but they haven't confirmed or denied anything. (Until their current lawsuit with Intel over the 8086 microcode has been settled, they may be keeping quiet about any new Intel compatible chips that are imminent.)

As it was also reported by *PC-Tech Journal*, in the April '86 issue, this rumored new Z-80/8088 combo chip is supposed to be called the V-25. According to NEC's previous announcements, that information appears to be wrong. The officially announced NEC

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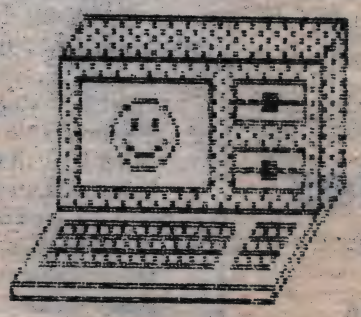

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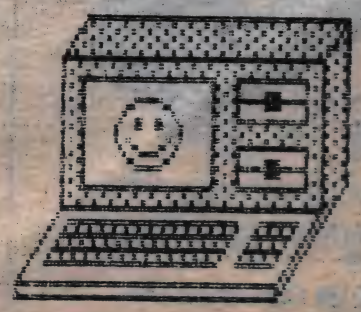

Expansion for Z-138 continued from page 157

can be mounted in it temporarily. The only parts you will need are two 50-pin socket connectors and an appropriate length of 50-wire ribbon cable. After crimping the connectors to the cable, connect the SCSI port on the Ampro (J8) to either the Xebec "Owl" or Seagate drives.

Use Ampro's HFORMAT utility from the 186's Hard Disk Support Software distribution disk. This is a menu driven program that includes simplified formatting options that are invoked automatically when you select these drives. This program sets up the hard disk drive by writing a "clean" set of data to the drive, and then stores information about the drive in the controller portion. It also maps out any bad regions it may find on the drive's storage surface.

This process may take from 20-30 minutes and you can watch it on the screen as the data is first written to all tracks and then read. When completed, the drive is wiped clean and ready for formatting by PC-DOS 3.0.

Simply type FORMAT E:/S to transfer the PC-DOS system to the drive, a procedure that only takes a few seconds. Now you can remove the drive, carefully, and mount it in the Z-138. The E: designation for the hard disk is because the Ampro ROM BIOS recognizes either 4 physical or logical drives—A:, B:, C: and D:.

Since even a 10-MB hard disk drive represents a lot of storage, you should take some time and determine which programs you expect to work with on a regular basis and use the versatile PC-DOS "tree" structure and locate these programs within a series of subdirectories. This will help to isolate the appropriate program files and your work files inside manageable clusters. Thus, when you call up a directory listing of a particular subdirectory you will be able to locate your data files with relative ease.

An Alternative

If the prospect of installing the Ampro 186 PC-DOS board inside your Z-138 or Z-148 computer doesn't appeal to you from the point of view of the cosmetic desecrations I outlined, you can, of course, use an external chassis to mount the hard disk, a floppy and the Ampro 186.

There are numerous IBM compatible expansion chassis on the market, but they usually cost an arm and a leg. After several months of scouting the marketplace, I finally located an interesting unit from KJT Manufacturing that is about half the cost of any other chassis currently available.

In the concluding installment of this 2-part article I will show you how to put together a really "wild" system using the Zenith and Ampro computers in conjunction with a pair of hard disk drives and other enhancements. And I guarantee that it will outperform any IBM-AT or compatible unit on the market.

Sources Mentioned In This Article

Zenith Data Systems (Heath Co.)
Benton Harbor, MI 49022
Ampro Computers, Inc.
67 East Evelyn Ave.
Mt. View, CA 94041
Wordcraft
3827 Penniman Avenue
Oakland, CA 94619
KJT Manufacturing, Inc.
4505 Ratliff Drive
Addison, TX 75001 ●

Expanding H/Z continued from page 158

V-25 is not a Z-80 compatible upgrade. Rather, it's a single chip microcomputer/controller which is 8088/188 compatible.

This V-25 chip is a CMOS, 84 pin LCC (leader-less chip carrier) design that's well suited for microcontroller applications. It has an even higher level of chip integration than the Intel 80188/86 chips. Preliminary specs indicate a 8 bit data bus, 256 bytes of RAM, optional 16K ROM, along with the usual clock

continued on page 195

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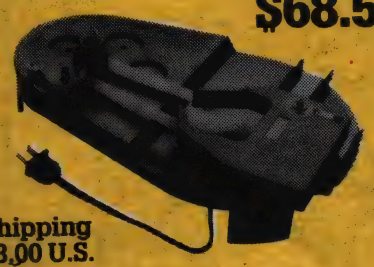

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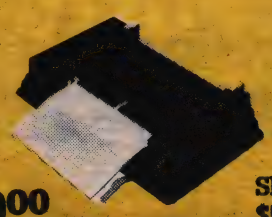

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- ★ Latest technology

When we found out that we could offer you a complete state-of-the art electronic telephone system for only $1799 we were ecstatic! But we did have a few serious questions. Who is going to install this for our customers? Is it going to be reliable? Who will repair it?

Well the answers were quite exciting. The system is so well engineered you can install it yourself. With the cables we send you, you simply plug it into your RJ11c modular outlets. You connect the telephones to the KSU with the same type of standard plugs. In other words, if you can plug in your present modular phone, you can install your own 510KT or 206KT business phone system. The phone system includes self-diagnostics in the uncommon event that the system needs repair. And repairs are a simple matter of board swapping. You may even want to do it yourself.

Features are easily programmed by a single key telephone set. You don't have to be a computer wizard. The user gets sensible, easy to use features and has the flexibility to change the data-base station, and to change restrictions without rewiring or calling for service.

When you consider the people behind the system, you'll be even more interested in the **510 KT**. The researchers and engineers combine over fifty years experience in the telecommunications industry from the most respected labs in North America: Bell Lab, Bell Canada, Northern Telecom and CDC. The manufacturer build PABX and PCM systems, and other high-tech products. Perhaps best known among them is the monitor for the IBM PC (for which they earned IBM's Zero Defect Award). The **510 KT** is backed by a one year warranty on all equipment manufacturer defects. Emergency replacements are provided, but there's not much chance you'll ever need one.

MW 510 KT was designed for small businesses. There's not another telephone system on the market that can do as much, as simply for less money. There are more complex systems, but chances are they have more gadgets than a small business would ever use, and they're a lot more expensive. There are less expensive and more limited systems that will cost more in the long run with repairs, installation charges and expansion. The **510 KT** is quickly installed, and it has the flexibility to make changes that would require service calls with other systems. The modular system is easy to expand, so it can grow with small businesses. Look into the **510 KT**, it answers the call of small business.

FEATURES

SYSTEM
- –system diagnostic indicator
- –data base change by a single key set
- –flexible extension number assignment
- –power failure backup
- –power failure transfer
- –volume control

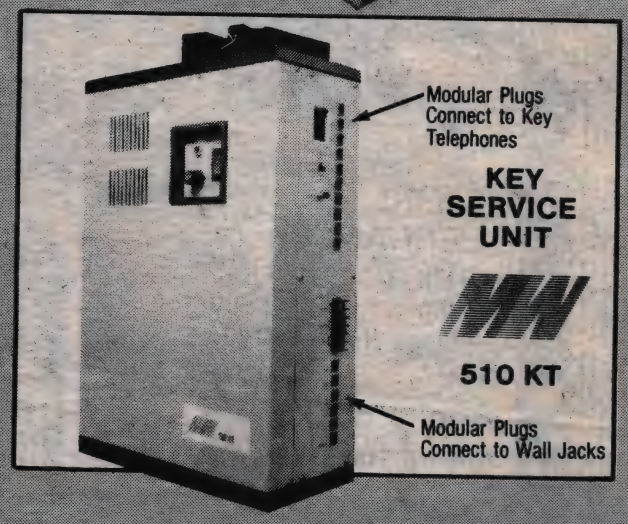
CENTRAL OFFICE CALLING
- –multiline pick up
- –private line
- –last number redial
- –abbreviated dialing
- –toll restriction
- –night service
- –switch-hook flash
- –music on hold
- –on hook dialing

INTERCOM CALLING
- –call forward
- –call pickup
- –call waiting
- –audible signal indicating called party busy
- –station paging
- –talkback to paging station
- –two intercom links

CENTRAL OFFICE AND INTERCOM CALLING
- –line status indication
- –distinctive ringing
- –hold
- –exclusive hold
- –i-hold
- –hold recall
- –privacy
- –monitoring
- –do not disturb
- –three-way conferencing

OPTIONAL FEATURES
- –zone paging via external speakers
- –speaker phone
- –hand free talk back
- – (SMDR) time/date/# called/duration recording (optional)
- –call message display
- –time of day display
- –stop watch for call time
- –directory of abbreviated dialing number display
- –feature operation display
- –dialed number display
- –canned message content display
- –adjunctor converting POT set into 510 KT compatible set

SPECIFICATIONS
- Central Office line capacity: 5
- Intercom link: 2
- Key sets capacity: 10
- Input power: AC 110V 50/60 H_z
- Power consumption: 40 watt
- Cable: 6-wire, Star Connection
- Dimension & Wt.: 17" x 12.5" x 5.5" 22 lbs
- Operating temp: 32-104 degrees F



MidWest 206 KT

ONLY $799

Includes:
- Key Service Unit
- 3 Full-Featured Key Telephones

MW 206 KT

The **MW 206 KT** system is a two-line, six extension telephone system which uses the same keyset as MW 510 KT; therefore, the features outlined in the attached literature are identical in both systems. The only difference between the two systems is their capacity (and KSU), this is a very attractive benefit to small, growing companies who do not need a larger system now but expect to expand in the near future. When the time comes to expand to the 510, all that is required is a KSU change. Much less expensive than purchasing a completely new system!

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SYSTEM
- System diagnostic indicator
- Data base change by a single key set
- Flexible extension number assignment
- Power Failure memory backup
- Power failure transfer
- Volume control

INTERCOM CALLING
- Call forward
- Call pickup
- Call waiting
- Audible signal indicating called party busy
- ICM tone plant
- Station paging
- ICM HF talk back

CENTRAL OFFICE & INTERCOM CALLING
- Line status indicating
- Distinctive ringing
- Hold
- Exclusive hold
- I-hold
- Hold recall
- Privacy
- Monitoring
- Do not disturb
- Three-way conferencing

SPECIFICATIONS
- Central office line capacity: 2
- Intercom link: 1
- Key sets capacity: 6
- Input power: AC115V 50/60 Hz
- Power consumption: 25 watt
- Cable: 6-wire, Star Connection
- Dimensions & Weight: 387 x 292 x 132 (mm ^{3}), 5.6 kgs
- Operating temp: 32-104 degrees F

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• CMI 6640	30meg	39ms	*$649*
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• PRIAM 40	40meg	30ms	*$1195*
• PRIAM 60	60meg	30ms	*$1495*
• MINISCRIBE 6053	45meg	28ms	*$1195*
• MINISCRIBE 6085	75meg	28ms	*$1495*

HIGH PERFORMANCE HARD DRIVES are 40ms average access time or better. These drives work equally well in a PC or AT but are priced for the AT. For XT or PC add $135. Drives larger than the 33meg DOS limit can be formatted for their full capacity for an additional $90. Call your COMPUTER DYNAMICS salesperson for details.

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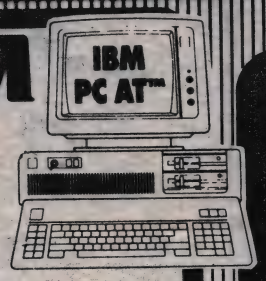
IBM



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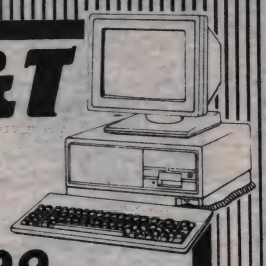

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Apple Repair Tools continued from page 62

your Apple. This has its advantages and disadvantages. When you don't use your programmer, you must store it separately from your Apple, and keep it in an anti-static container to make sure that it isn't accidentally damaged. On the plus side, since the EPROM socket, and indicator LEDs are above the top of the Apple, they are easy to access.

The programmer uses a LIF (Low Insertion force) socket rather than the usual ZIF (Zero Insertion Force) socket of the EPROMs. You do not need to use an IC puller or inserter, but if you have butter-fingers like me, then you will want to take extra care when removing or inserting the EPROMs. Six LEDs are visible on top of the programmer. Four of them indicate what size EPROM you are using (2716, 2732, 2764, or 27128), one indicates when the programmer is writing to the EPROM, and the last LED indicates when power is applied to the socket, and it is unsafe to remove or insert an EPROM. The LEDs are in a row, and fairly easy to mix up with each other, so I bent the safety LED up to make it easier to see.

The RP525 does not come with any program disk, nor does it need one. A menu driven program is built onto the board. The menu lets you write to an EPROM, read an EPROM, check to see if an EPROM is erased, compare an EPROM with a portion of your Apple's memory, and make a copy of an EPROM. No jumper blocks are needed to configure the RP525, all you have to do is tell it what kind of EPROM you are using. Documentation is somewhat sparse, four photocopied pages of direct-translated Japanese documentation (GOLF plated edge connectors?) Even with the sketchy documentation, the RP525 is actually easier to use than most stand-alone programmers. All you have to do is load the code you want to burn into your Apple's memory, and the RP525 will burn it for you. The fast write mode will burn a 16K 27128 EPROM in a minute. In the standard mode the programmer will show you what it is burning while the programmer is in action. The trade-off for seeing the data as it's burned is speed. The slow mode takes fifteen times longer to burn an EPROM than the fast mode (15 minutes for a 27128). Both write modes automatically check that the EPROM is blank, burn the code, and verify that the EPROM is correctly burned after it is finished.

If you want to burn a large number of EPROMs you may want to get a stand-alone programmer designed for production runs. But if you just want to burn an occasional EPROM, then the RP525 may be more efficient.

Product: IC Test Card
Price: $99.95
Hardware Requirements: Apple II, IIe or compatible
Products Support: Most TTL ICs including: 74XX 74LS, HC & CD CMOS

Warranty: 1 year
Summary: Excellent repair tool for an experienced technician

Product: RP525 EPROM Programmer
Price: $59.95
Hardware Requirements: Apple II, IIe or compatible
Products Support: 27XX EPROMs: 2716, 2732, 2732A, 2764, 27128

Warranty: 1 year
Summary: Excellent low cost EPROM Programmer for occasional use ●

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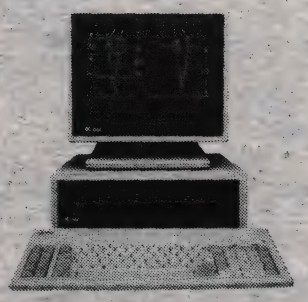

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Ask The Guru
continued from page 62

anywhere. It is called *U&LC* and is published by the International Typeface people.

You are supposed to sound like a commercial artist or art director when you request your free copy.

Turning to free trade journals, three that I have found rather useful are *Printing Impressions; Paper, Film, and Foil Converter;* and *Electronic Publishing.*

How Can I Have Two Monitors In An Apple IIe?

This is another question that keeps coming up over the help line. To recap: The so-called enhanced Apple IIe monitor is incapable of running much of the older Apple II + and early Apple IIe software. Worse yet, the dealer doing your upgrade will try to steal your existing monitor and character generator ROMs from you when the upgrade is done.

I've shown you one solution in a previous column. What you can do is program a "double-wide" 27128 EPROM for each of the CD and EF monitor ROMs, and similarly program a "double wide" 2764 EPROM for the character generator. A changeover switch on each socket then flips you from old to new.

But there is now a better way. Computer Accents now makes a small plug-in board that fits your Apple IIe and accepts both the old and new character generator and the old and new monitor ROM pairs. The product is called the Switchback and sells for $59.95 plus $2.50 shipping and handling.

To use this board, unplug your present ROMs, plug in the switchback module, and then plug in both your old and new ROMs.

This method is far easier than burning your own EPROMs. There's both an internal and an external changeover switch available.

The only little gotcha is to make absolutely sure your dealer does not try to steal your old chips when he does an upgrade. Two ways to prevent this are to do the upgrade yourself with the Apple kit, or else remove both monitor chips and the character generator *before* you take your Apple IIe in.

About the only way some upgrade dealers will see the light is if you have them arrested on felony charges after their larcenous theft of components that you rightly and legally own. It's high time these epsilon minuses were finally and firmly nailed to the wall.

How Can I Draw Cartoon Characters?

Why, with Applewriter on an Apple IIe, of course. How else could you possibly draw decent cartoon characters?

Figure one shows a typical cartoon character, drawn by the Applewriter word processor on the Laserwriter. The text cartoon file ends up the size of a business memo, mostly since I did not bother compacting it much.

See Figure 1
on page 220 & 221

As you can see, you can easily "draw" outstanding cartoon

continued on page 220

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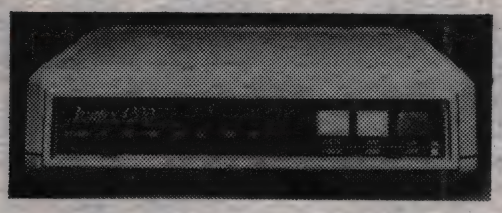

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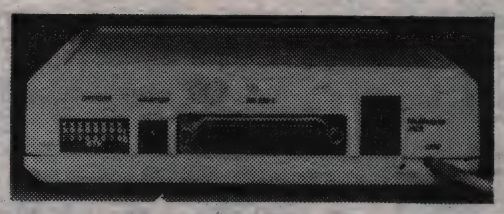

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and (2) on manual feed, an instruction sheet is no longer ejected.

Apple to Improve Distribution: Recently it appears Apple has been releasing new versions of the Macintosh operating systems every week. This has caused a multitude of problems as most users cannot get the newest versions. If your local dealers are like mine, you know they are the last to know of improvements. Well Apple has heard the complaints and has finally taken action. It will let selected commercial bulletin boards store the files for customer downloading. Among services mentioned are Genie, Delphi, Compuserve, and the Source. Look for this to begin around June 1st.

LaserWriter Material: If you're trying to decide whether to buy the Inside LaserWriter package from Apple, here is what you will get for your $75.

There is no circuitry or pinout descriptions of the LaserWriter just (1) a detailed explanation of the PostScript communications protocol, (2) a description of the various switch positions; and (3) instructions on how to change EPROM settings.

Two books *PostScript Language Tutorial and Cookbook* and *PostScript Language Reference Manual* are included. Both are approximately 200 pages and are available separately at many bookstores for $16.95. They contain a wealth of information about the PostScript language. Also included is a 3-ring binder containing four short documents:

1. Programming and Debugging Aids
2. Using the Macintosh Printing Manager
3. Using MacTerminal to Talk Directly to PostScript
4. Source of the Apple PostScript Header.

Two disks are included in the package: Mac Programming Aids Version 1.0 and Mac Screen Fonts Version 1.1. The Programming Aids disk contains programs and text files. The most useful application is PSDump 2.5 which allows the sending of a PostScript file directly to the LaserWriter over AppleTalk. Among text documents are PostScript files that contain definitions for each character of each font. Finally all the programming examples given in the *PostScript Language Tutorial and Cookbook* are found.

Screen Fonts disk contains: Font/DA mover files as follows:

TitLL-	Point Size
Times Roman	9 10 12 14 18 24
Times Bold	10 12 14 18 24
Times Italic	10 12 14 18 24
Times Bold Italic	10 12 14 18 24
Helvetica	7 9 10 12 14 18 24
Helvetica Oblique	10 12 14 18
Helvetica Bold	10 12 14 18 24
Helvetica Bold Oblique	10 12 14 18 24
Symbol	10 12 14 18 24
Courier – single file has:	
Courier	10 12
Courier Bold	10 12
Courier Oblique	10 12
Courier Bold Oblique	10 12

Stop the LaserWriter Test Sheet: If you are constantly turning the LaserWriter ON and OFF, you know the LaserWriter can use up a horrendous amount of paper sending out test sheets. It is possible to stop this using a PostScript command. First switch the LaserWriter OFF and remove Appletalk cables and hook up either the Macintosh 512K DB-9 to DB-9 cable (Apple part #590-0197-A) or the Macintosh Plus DB-9 to mini 8 cable (Apple part #590-0332-B) to the modem port on the Macintosh and the other end to the DB-9 on the LaserWriter. Change the setting on the LaserWriter to 9600 or 1200 baud and turn power ON, then start up a terminal program at the correct baud rate and 8 bits 2 stop and no parity.

1. Type: "executive" Return
2. The LaserWriter will respond with:

PostScript(tm) Version 23.0
Copyright (c) 1984 Adobe Systems Incorporated.
PS>

3. At the prompt Type: "serverdict begin 0 exitserver statusdict begin false setdostartpage" Return
4. The LaserWriter will respond with:: % %[exitserver: permanent state may be changed]% %
5. This acknowledgement says that you have changed this parameter permanently.
6. If you want to change it back perform the same procedure but substitute "true" for "false."

Still Another New Macintosh: Apple recently announced that it was replacing the 512K Macintosh with a new model called the Macintosh Enhanced. It incorporates some of the features recently introduced on the Macintosh Plus. The Macintosh Enhanced will have the same suggested price as the 512K Macintosh, $1,999.

The main differences between the Enhanced and the Macintosh Plus is the Enhanced will have only 512K of memory (the Plus has one meg) and lacks the SCSI ports. The Enhanced will have an 800K internal disk drive, and the 128K ROM which allows faster screen updating and file access. The Enhanced will not come bundled with MacWrite or MacPaint.

Owners of 512k Macintoshes can upgrade to the Enchanced by purchasing the Macintosh Plus disk drive kit. If you purchased a 512k Macintosh between January 16 and April 15, a $75 rebate is available from Apple for purchasing the kit.

The reasons Apple is replac

continued on next page

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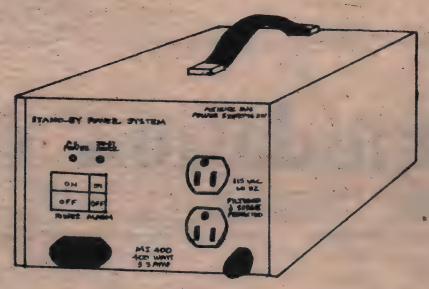

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ing the 512 Macintosh with the Macintosh Enhanced are simple. First, the 400K disk drive is passe. Using a 400K internal with the 800K external is extremely difficult (400K externals are no longer available). There are so many files that have to be on the internal system disk of a 512K Macintosh for the 800K drive to work that there was no storage left on the 400K drive. Second, the software developers were screaming for it. As programs become more complex, there just is not enough room to place all the necessary files on 400K. Jazz and the spelling programs are a prime example. If they were any bigger they would not fit on a 400K disk.

And what does this change mean to the owner of a 512K Macintosh? In the short run, not much. Most software will be distributed on a 400K disk. But in the long run, more and more developers will distribute their software on 800K diskettes. Sooner or later you will have to make the switch.

***MacWorld* Has Changed:** The editors of *MacWorld* have wised up and changed the philosophy of their magazine. I quit reading it a year ago because it had turned into one gigantic press release. Everything was good and they refused to pass judgement on competing products. They could review five similar programs and would find nothing wrong with them. Well thank God, they have seen the error of their ways. They have finally started to pass judgement on new products and tell you which ones are good and which ones are bad. If you had previously given up on it, take a fresh look. You will be pleasantly surprised.

An Apple II in a Mac: I have heard a number of nice things about a program called "][in a Mac." This program lets the Apple Macintosh run Apple IIe and IIc software without user modifications! The program comes with three diskettes. One diskette turns the Macintosh into an Apple IIe and IIc clone that can run all Apple II software. The second disk is a bi-directional communications program that allows transfer of Apple II software and data files (via cable or modem), giving the user the option of storing Apple II software developed on the Macintosh on 5¼ diskette (2 Apple II floppy diskettes equals one Mac diskette). The third diskette contains DOS 3.3 and the PRODOS system master.

This product is ideal for schools which already have a large installed base of Apple IIs. It gives them the ability to run their educational software on the Mac.

A Good Deal: About two years ago, Computer Software Design released the only true relational database for the Macintosh. Called MacLion, it sold for $379. It came in with a splash and had a large advertising budget for about a year. But like all products that do not win customer acceptance, it died. Well Computer Software Design's misfortune can be your good luck. If you look hard enough, you can get a great price on it. At the West Coast Computer Faire you could buy it for $9.95. And the true beauty of the situation is that MacLion is still being supported by Computer Software Design. It has a similar product available for the IBM PC. Now MacLion is not for everybody but at $10 it is hard to go wrong for a fully functional relational database.

A Fan for Your Mac: You really got to give it Apple. When they designed the Macintosh they blew the ventilation. My first Macintosh got so hot that the insulation melted off the wires attached to the power supply board. The mess was so bad my unit could not be repaired in St. Louis. The unit had to go to Apple Service in Chicago to be fixed. And as was par for the course, the unit was out of warranty and I had to pay $150 for the repair. That is why you should consider a fan for your unit. The best designed unit I have seen is the System Saver Mac by Kensington Microware. At $99.95 it is more expensive than the competition but it does have one major advantage over the competition. It comes equipped with two switches. You can plug your Macintosh and a peripheral into it. When you turn the fan on, you power up the equipment. This is a fine way to ensure your equipment does not suffer a terminal meltdown.

Mac Carry Bags Warning: If you have the Apple brand Macintosh carrying bag immediately replace the straps. According to a number of people, the buckles that hold the shoulder strap are not strong enough and can break. If they break while you are carrying it, your Macintosh can be damaged, and Apple's philosophy is to repair the buckle and not the damaged Macintosh. Go to a luggage store and buy a good quality strap and buckle.

Compuserve Programs: This month, instead of describing two new programs, I am presenting a comprehensive list of Macintosh software compiled by Price Collins. This list describes the current version number of Macintosh software. If you own software on this list and it is an earlier version, contact the manufacturer for information regarding its update policy.

Products Mentioned In This Column

Apple Macintosh Enhanced-Suggested Retail $1995.

Apple LaserWriter-Suggested Retail $5999.

Apple Computer Inc., 20525 Mariani Avenue, Cupertino, CA 95014; 418/996-1010.

Inside LaserWriter-Suggested Retail $75.

Apple Computer Inc., Suite 621, 467 Saratoga Avenue, San Jose, CA 95129; 408/988-6009.

PostScript Language Tutorial and Cookbook -$16.95.

PostScript Language Reference Manual-$16.95.

Addison-Wesley Publishing Company, available at local bookstores.

"][in a Mac"-Suggested Retail $69.95.

COMPUTER:applications, Inc., 12813 Lindley Drive, Raleigh, NC 27614; 919/846-1411.

Silicon Press-Suggested Retail $79.95.

Silicon Beach Software, 9580 Black Mountain Road, San Diego, CA; 619/695-6056.

MacWorld-One year's subscription $24.

Subscription Department, P.O. Box 51666, Boulder, Colorado 80321; 800/972-3100.

System Saver Mac-Suggested Retail $99.95.

Kensington Microware Ltd., 251 Park Avenue South, New York, NY 10010; 800/475-5200. ●

MacExpo Show continued from page 64

It is designed to run continuously and comes with its own power supply.

A QuickDrive with two megabytes of memory cost $675 and a one megabyte version is available for $575. For an additional $100, a battery backup is available that will power the unit for approximately 3 hours after a power failure.

Warp Line Products: Warp Line Engineering showed three different disk units for both the Macintosh 512 and the Macintosh Plus. For $239 you can get a 800K external disk drive. Called the Phaser 800 this unit is supposed to be compatible with the entire Macintosh line. According to a Warp Line representative, the Phaser 800 will work as a 800K drive on either the Macintosh Plus or the Macintosh Enhanced and emulate a 400K drive on all other Macintoshes. If you need a hard drive, Warp Line has the cheapest prices I have ever seen. For $949 you can get the Warp 20, an internal 20 meg hard drive for the Macintosh Plus. This unit is user installable and comes with a step-by-step illustrated manual. The external version of this drive is called the Photon 20. It cost $795 and uses the SCSI port on the Macintosh Plus. Excluding the separate power supply, the Photon 20 is a little bit bigger than Apple's 400K external disk drive. All Warp Line units come with a 30-day money back guarantee and a full 90-day warranty. A one year warranty is available an extra cost. These units are only available via mail order from Warp Line Engineering.

Mirror Technology Hard drives: If you need truly massive amounts of storage space take a look at Mirror Technologies' Magnet 85X and 172X hard disk drives. These SCSI drives have formatted capacities of 67.8 megabytes and 146.64 megabytes respectively. They can serve single or multiple users on an AppleTalk network running the supplied MacServe software.

Both units can function as AppleTalk disk servers, print server, and print spooler (up to 32 jobs). Streaming and start/stop tape backups are available as options, as well as installation of a "FirstPort" SCSI adaptor on a Macintosh 512K. No prices are currently available.

Disk Books: The classiest storage unit for 3.5 inch diskettes I have ever seen is the Disk Book series by Microstore. When closed it is impossible for a disk to fall out. Yet when

contined on page 170

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Macintosh At The West Coast Computer Faire

by L.J. Kutten

Discovering Macintosh material at the 11th Annual West Coast Computer Faire was a frustrating experience. An overwhelming majority (85%) were IBM oriented. Those that showed Macintosh products broke down into two types, the resellers and developers. The resellers were large companies that regularly appear at computer shows. On the first day of the show they were selling a Macintosh Plus for $2100. By the third day, the price had dropped to $1988. The developers of new products were few and far between. Three days of active searching did not even garner enough material to half fill one of the free shopping bags the Apple was giving away. The Apple booth was a bummer. A few developers were present showing their software but nothing was new. The busiest part of the booth was where Apple was selling merchandise (e.g. T-shirts, coffee mugs, wallets, etc) embossed with their logo.

What follows is a brief description of the new products I saw.

Software

Data & Information Software Company demonstrated its People in Places demographic software. This program contains fifty sets of demographic statistics from the 1980 U.S. Census for 1000 metropolitan counties. The information can be presented three ways: (1) detailed lists to compare and review exact figures; (2) bar graphs to visualize relative values selected: and (3) maps scaled to show the geographies relationships. Currently People in Places is only available via mail order for $59.95.

A ThinkTank type outliner program called MaxThink was shown. Previously available for the IBM PC, it is to ThinkTank what Word is to MacWrite. It is definitely the outliner a power user would want. Among its specialized features are (1) the ability to enter text without limit with full forward/backward word wrap; (2) capability to install up to 99 levels in an outline; (3) insert and remove fields of text across multiple fields; and (4) an online reference card and help file for every command and prompt. MaxThink costs $89 and comes with a 30 day "no-question, no-delay refund" policy.

PBI Software had a large booth and showed two new software packages; HFS Locator Plus and HD Backup. HFS Locator Plus is a desk accessory that can locate, delete, copy, and rename Hierarchical File System files without leaving an application. The files (and the folders they reside in) can be located by date, or by a partial/matching name. HFS Locator Plus is available now for $24.95. HD Backup is a generic backup utility that copies files from hard disks to floppy disks. It supports both the MFS and HFS systems. It can perform both global and incremental back-ups (i.e. back-ups only changed files from the last global back-up). All files are maintained as standard files and not encrypted. According to PBI, HD Backup has been tested with all SCSI hard disk drives currently available for the Macintosh Plus, plus most of the serial hard disks (e.g. Corvus, Tecmar, Paradise) that work with the 128K and 512K Macintosh. HD Backup is currently available for $49.95.

myDiskLabeler version 2 was shown by William & Macias Microcomputer Products. This program is an intelligent label printer that allows the user to design and print professional looking labels using a variety of fonts styles and sizes. Among its specialized features are (1) the ability to grab icons from application programs and edit them, (2) access MacPaint for drawings, (3) use a variety of font styles and sizes in preparing the label, and (4) sort directories. myDiskLabeler can print single or multiple labels using its "intelligent" label interface. The label(s) to be printed are first selected by viewing an image of the label sheet on the Macintosh screen and clicking the positions to be printed. The sheet is then aligned using its special label alignment form. myDiskLabeler costs $44.95 and comes with 54 label sheets.

For C language programmers, serious consideration should be given to LightspeedC. This is a high speed development language that can compile, link, and launch a pro-

continued on page 172

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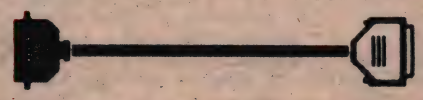

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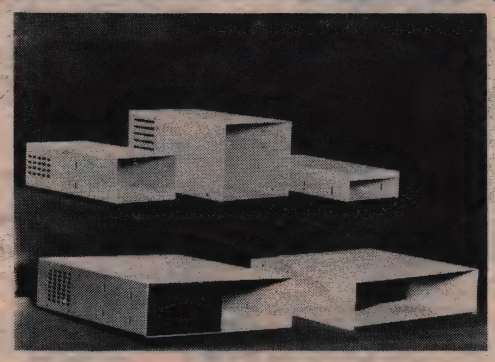

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continued from page 168

opened, all the disks are immediately available. There are three different types of units. The Disk Book 32 holds 32 diskettes, the Disk Book 10 holds 10 diskettes, and the Disk Book Plus holds 16 diskettes, a note pad, pen, and a standard size Macintosh instruction book. Prices are $24.95 the Disk Book 32 and the Disk Book Plus while the Disk Book 10 costs $14.95. All Disk Books are made with water and stain proof nylon material and come in four colors: navy blue, grey, burgundy, and red. They have heat sealed pockets so there are no seems or stitch lines for the diskettes to catch on. I was so impressed with them that I bought two.

A Writer's Tool: If you read any of the dedicated Macintosh magazines, you should have seen a teaser ad for a program called Doug Clapp's Word Tools. This is a text analysis program that is supposed to help a writer improve his writing technique by analyzing writing style. According to the author, it can (1) analyze a document for wordiness and suggest more concise alternatives; (2) compute the average length of words, sentences and paragraphs; (3) determine the grade level of the writing ("5th" to "Post-College"); (4) inform the user as to the predominant voice used in a document (on a scale from "Active" to "Passive"); and (5) even tell you the "Interest Level" of your writing, ranging from "Fascinating" to "So-so" to "Profoundly dull."

Word Tools is compatible with any MacWrite, Microsoft Word or "text only" document and will work with Switcher. It requires at least 512K memory. Word Tools has a tentative price of $79.95 and is scheduled for release by the end of June.

Pascal and C Language Extenders: If you program in either C or Pascal take a serious look at Invention Software Corporation's software extender programs. These are compiled libraries which contain routines designed to simplify program development. For example a single function call can create a window and all the standard window functions such as scroll bars, a go-away box, and grow box. And if you market a program developed with these libraries, there are no secondary license fees. Extenders are available for Aztec, Magamax C, Apple Pascal, and TML Pascal. The C extenders are

continued on next page

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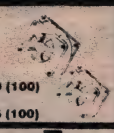

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continued from page 64

Princeton Font	2.0hm	s+	
ProCom-M		c	Prometheus
Professional Composer	2.0	c	Mark of the Unicorn
QUED	1.3	c+	Paragon Courseware
Quest	–	c	Penguin
Quick & Dirty Util. 1	1.5	c	Dreams of Phoenix
Quick & Dirty Util. 2	1.0	c+	Dreams of Phoenix
Quickfile	0.5	f	Bill Steinberg
Quickset	2.0-HFS	c+	EnterSet
Rags to Riches	2.6	c	Chang Labs
RamStart	1.21	f	George Nelson
ReadySetGo	2.1	c	Manhattan Graphics
REdit	1.2	a	Apple
Red Ryder	8.0	s+	FreeSoft
Red Ryder Host	1.01	s+	FreeSoft
Redit	1.2	a+	Apple
ResEdit	1.0d7	a+	Apple
Right Word	3.0	c	Rio Grande Software
Rogue	1.0	c	Epyx
Run for the Money	1.0	c	Scarborough
Sargon III	1.0	c	Hayden
Scriptor	1.0a		Screenplay
SideKick	1.1	c+	Borland
Silicon Press	1.0	c	Silicon Beach
SkipFinder	5.3		
Slide Show Magician	1.3	c	Magnum
Smartcom II	2.2a	c+	Hayes
Sony Test	4/85	?	Apple
SoundCap	1.0	c	MacNifty
Sound Level	1.3	f	Steinberg/Brecher
Speed Disk	2.0	?	Apple
Speller	1.2C	c	Hayden
Star League Baseball	1.0	c	Gamestar
Statview		c	Brainpower
Statworks	1.2	c	Cricket
Strategic Conquest		c	PBI Software
Studio Session	1.0	c	MacNifty
Switcher	4.4/6	a	Aple
System	3.1.1	a+	Apple
Telescape	1.0	c	Mainstay
Tempo	1.1		Affinity
TermWorks	1.2	s	
Think Tank 128	1.1	c	Living Videotext
ThinkTank 512	1.2	c	Living Videotext
Through the Looking Glass	1.0	c	Apple
Throw Paint	1.0	p	
Thunderscan	3.1	c	ThunderWare
TimeBase	1.6	c	Target Software
TinCan	1.0	c	Yale Univ.
TK!Solver			Software Arts
TMON	2.585	c	TMQ Software
Topdesk	1.2		
Transylvania	1.0	c	Pengiun
TurboCharger	1.11	c	Nevins
TurboDownload	1.0	c	Mainstay
Twelve-C Financial DA	1.4	c	Dreams of Phoenix
Typemasters	1.0	c	Adobe Systems
TypeNow	1.0	c	Mainstay
Typing Tutor III	1.1	c	Simon & Schuster
VCO	1.3	s+	Harry Chesley
VersaTerm	2.00	c	Peripherals, Supplies
Videoworks	1.0	c+	Hayden
VMCO	1.5c	f+	Harry Chesley
VUWTerm	0.17	f	U.of Wellington
Wator	–	s	Robert Martin
Waystation	2.2	s+	Steve Brecher
Word	1.05	c+	Microsoft
XLisp	1.6	p	David Betz
Xyphus	1.0	c	Penguin
YetAnotherPrintUtil.	3.2	s	

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$129.95 and the Pascal extenders are $69.95.

Macros for the Mac: A macro is a sequence of commands or keystrokes that are recorded once and played back with a single keyboard command. For example, a macro could order a program to start, open a specific file, manipulate data, print out the results, close the file, and then exit the program. They are the only way to make sure that a unique series of key commands always get done in right order.

Excluding Microsoft Excel, Macintosh programs do not come with macros. But thanks to Affinity Microsystems Tempo program, you can now add them to most programs. Tempo allows intelligent macros to be added to programs. These macros can (1) pause during a macro replay to allow the user to enter test or make a section, (2) assign up to 450 different keyboard commands to each application program, (3) control the speed of the macro, and (4) connect different macros together. Tempo has a suggested retail price of $99.00.

Build Your Own Adventure: This program will allow anyone to create elaborate adventure games with graphics, text and sound effects. You can have hundreds of "rooms" or scenes that are inhabited by characters whose attributes and characteristics you have defined. Sounds may be added from a stock library of sounds.

You may give away the adventures you create, or even sell them. No royalties or license fees must be paid to Silicon Beach. World Builder has a tentative price of $79.95 and is scheduled for release this summer.

Products Mentioned In This Article

MouseEase — $2.95 per set plus 50 cents shipping.

Tacklind Design, Inc., 250 Cowper Street, Palo Alto, CA 94031.

PLUS 20 — Suggested Retail $1195.

PLUS 30 — Suggested Retail $1595.

Peak Systems, P.O. Box 16104, Austin, Texas 78716-1404; 512/329-1020.

Warp Line Photon 20 $795.00.

Warp Line Warp 20 — $949.00.

Warp Line Phaser 800 — $239.00.

Warp Line Engineering, Inc. Suite 107, 1751 West County Road B, Roseville, MN 55113; 800/328-6785 ext. 433.

Disk Book 32 — Suggested Retail $24.95.

Disk Book Plus — Suggested Retail $24.95.

Disk Book 10 — Suggested Retail $14.95.

MicroStore, P.O. Box 37, St. Peters, MN 56082; 800/962-8885.

QuickDrive 2 meg $675, 1 meg $575, Battery backup $100.

MacVentures, P.O. Box 6123, Aloha, OR 97007; 503/645-9696.

MagNet 85X — Price not yet set.

MagNet 172X — Price not yet set.

Mirror Technologies Ltd., 2209 Phelps Road, Hugo, Minnesota 55038; 612/426-3276.

Doug Clapp's Word Tools — Tentative Price — $79.95.

Aegis Development, Inc., 2210 Wilshire Blvd., Suite 277, Santa Monica, California 90403; 213/306-0735.

Pascal Extender — Suggested Retail — $69.95.

C Extender — Suggested Retail — $129.95

Inventive Software Corporation, P.O. Box 3168, Ann Arbor, MI 48106; 313/996-8108.

Tempo — Suggested Retail — $99.

Affinity Microsystems, Suite 425, 1050 Walnut Street, Boulder, CO 80302; 303/442-4840.

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continued from page 169

gram ten times faster than the competition. Developed by Think Technologies, it has a suggested retail price of $175. The package is not intended for the student who wants to learn about C. Rather Think Technologies is positioning the product for serious and professional software developers.

Hardware

The most unique product shown is still in development. The Mac Cartridge, manufactured by Data Pacific, is an Atari ST cartridge and diskette that allows an Atari ST to run unmodified Macintosh software (I saw it running MacPaint and MacWrite). The developers are currently negotiating with Apple in an attempt to get quantity delivery of the Macintosh ROM but rumor has it Apple will never sell them the ROM. Do not hold your breaths waiting for this product.

Macintosh users with money to burn should look at the Prodigy 4 internal upgrade by Levco, manufacturers of the MonsterMac memory upgrade. This upgrade board features a Motorola 68020 microprocessor, a Motorola 68881 floating-point math co-processor, four megabytes of contiguous RAM, and an enhanced on-board SCSI port. According to Levco, this board gives the Macintosh twice the performance of a VAX 11-789 mini-computer. The board is not yet in production, but a Levco spokesman said the board would cost between $8000 and $9000.

Color enthusiasts who have $6490 to spend should examine the Superchroma system from Computer Friends. This is a hardware and software package that gives the Macintosh full color capability. The full system consist of three parts: the Colorpaint software, a high resolution color monitor (440 by 460 pixels), and a frame buffer. The Colorpaint software is very similar to MacPaint except for two additional features. First it can generate over 16 million different colors, tints, and shades. Second, it has automatic tinting and shading. You can put a light source in one corner of the screen, e.g. the sun facing the earth, and the program will automatically diffuse the light over picture.

According to the developer, the Superchroma system is compatible with color broadcasting standards and pictures can be recorded on a VCR.

Finally for users who need a long extension cable for the Macintosh keyboard, Cable Tech of San Francisco is manufacturing a 12 foot cable called the MacCable. At $9.95 it is a bargain for those that need the distance.

Companies Listed In This Column

People in Places — Suggested price $59.95. Data & Information Software Company, Suite 200, 100 Bush Street, San Francisco, CA 94104

MaxThink — Suggested Price $89. MaxThink, Inc., 230 Crocker Avenue, Piedmont, CA 94610; 800-227-1590, 800-642-2406 (California only)

MacCable — Suggested Price $9.95. Cable Tech, 2261 Market Street, San Francisco, CA 94114, (no phone number available)

HFS Locator Plus — Suggested Retail Price — $24.95. HD Backup — Suggested Retail Price$49.95. 1111 Trinton Drive, Foster City, CA 94404; 415-349-8765

myDiskLabeler — Suggested Price $44.95. William & Macias Microcomputer Products, Spokane International Airport Business Part, P.O. Box 19206, Spokane, Washington 99219; 800-752-4400, 509-458-6312

Lightspeed C — Suggested price is $175. Think Technologies, Inc., Suite 350, 420 Bedford Street, Lexington, MA 02173; 617-863-5595.

Mac Cartridge — Currently not marketed. Data Pacific, Inc., Suite 4, 4269 Via Marina, Marina del Rey, CA 90292; 213-821-2623.

Levco Prodigy 4 — Firm Price not set — estimated between $8000 and $9000. Levco, Suite C-203, 6160 Lusk Blvd., San Diego, CA 92121; 619/457-2011.

Superchroma System — Suggested Retail $6290. Computer Friends, Inc., 6415 Canyon Ct., Portland, OR 97221; 503/297-2321. ●

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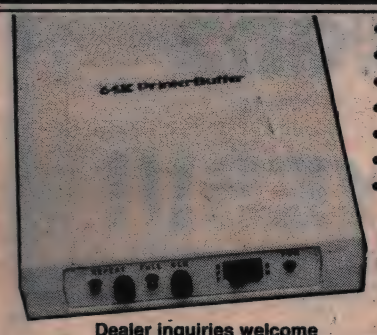

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McD-800 Mac-Drive Price Slashed $110

McD-800 Mac-Drive

PKI, Inc. announces a price reduction of $110 from the suggested list price of their 3.5" Macintosh disk drive, the McD-800. The six-month warranty will remain. The newly announced suggested list price is $349.00.

Introduced in February of this year, the McD-800 had a suggested list price of $459. "The McD-800 has proven to be quite reliable and the $110 price cut is designed to make this drive even more attractive to new and existing Mac users. There are a lot of PLUS upgrades and Mac PLUS

continued on page 174

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McD-800
continued from page 172

systems being sold. Mac users need a reasonably priced double-sided drive now," states Jerry Kaye, director of marketing for PKI, Inc. Dealer reaction is said to be very positive.

The McD-800 is a high quality micro-floppy disk drive utilizing the latest CMOS chip circuitry. Low power consumption is assured with a new motor design. The drive features both automatic and manual eject mechanisms. Additionally, there is a "Soft Landing Function" to protect the head and disk from mechanical shock when disk is inserted into the drive. The McD-800 has a Mac-matching case and cable.

For further information contact PKI Incorporated, 2539 W. 237 St. E., Torrance, CA 90505; (213) 539-2123.

Mention that you read about it in *Computer Shopper.* ●

Microsoft Flight Simulator Takes Off On The Macintosh

Microsoft announced the release of a version of the popular Microsoft Flight Simulator for the Apple Macintosh. This engaging and realistic flight simulator program has been significantly enhanced to take advantage of the graphical characteristics of the Macintosh to offer a more realistic flying experience.

Macintosh Flight Simulator, developed for Microsoft by Sublogic, Inc., offers computer pilots two different aircraft to fly: a Cessna 182 and a Gates Learjet 25G. These aircraft can take off and land at 118 detailed airports across the country — 38 more than the IBM PC version of the game. A World War I Flying Ace game is also included in the program.

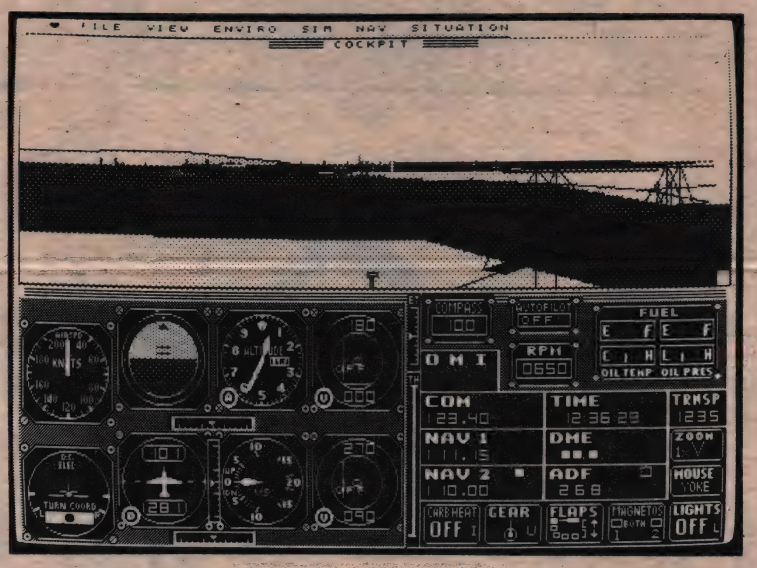
Five scenery databases add richer visual images. The simulation game now begins in the San Francisco/Oakland area with a scenic view of the Golden Gate Bridge and San Francisco Bay during take off.

A Realistic Flying Experience on the Apple Macintosh

With Flight Simulator, pilots fly with full instrumentation to meet FAA regulations. Flight response rates and aerodynamic behavior are authentic.

The scenery, buildings and landscapes in Flight Simulator have evolved beyond simple line drawings to three-dimensional solid shapes with depth, shading and perspective. Sound effects help complete the realistic flying experience.

"This game will continually challenge even the most experienced pilots. They can vary just about any flight condition and experience, it's almost as if they were really flying," said Valerie Houtchens, group product manager for Microsoft's Macintosh product line.



Flight Simulation on the Mac

The player can set wind velocity, and clouds at various altitudes, change the seasons or even build-in aircraft unreliability. They can fly a Cessna through the toughest crosscountry conditions. Push a Learjet to the limit. Or fight off enemy planes in the arcade style World War I Ace game.

Macintosh Version Offers A Different View From Every Window

The player can now view his progress from three different perspectives — from the cockpit, the control tower or a spotter plane. And with multiple active windows, he or she can simultaneously watch any two of these views plus a map and the control panel. Each window provides full movement, zooming up or down and sizing.

Pilots can perform a barrel roll and watch themselves from the spotter plane at the same time. They can even save the experience in memory and play a favorite stunt over and over.

Available Through Local Retailers for $49.95

This new version of Microsoft Flight Simulator runs on any Apple Macintosh. Use of the 512K Macintosh makes some additional features possible.

Copies are available at local retailers for $49.95, and includes a comprehensive 150 page flight manual with detailed maps of 118 airports.

For more information, contact Microsoft Corporation, 16011 NE 36th Way, Box 97017, Redmond, Washington 98073-9717; 206-882-8080, TLX: 328945.

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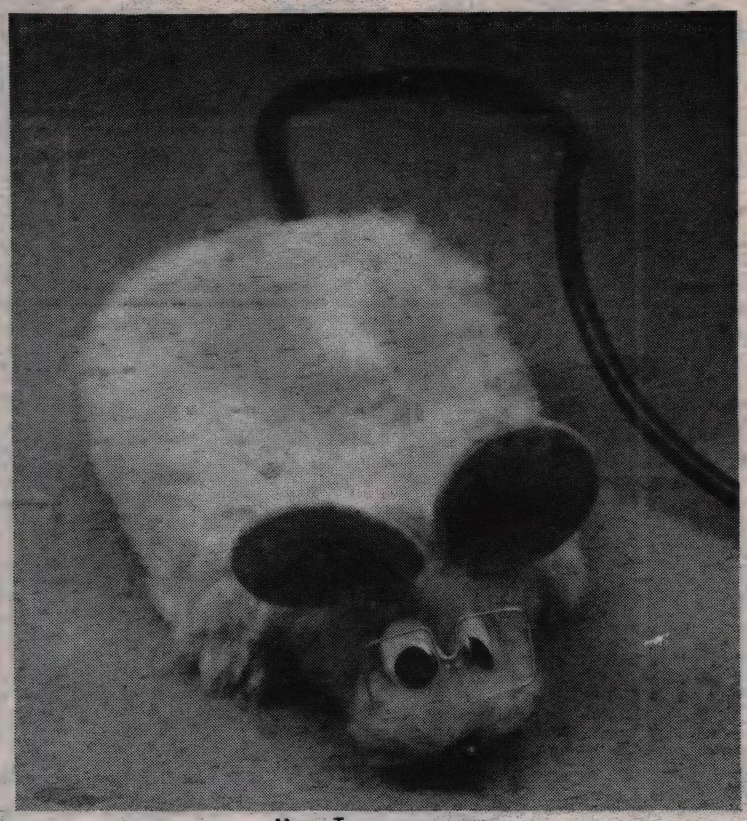

MouseTop mouse cover

The end of the plain mouse has come with the introduction of the MouseTop mouse cover by H&H Enterprises. MouseTop, the mouse cover with a "Country Mouse" look, has set out to give personality to computer mouses nationwide.

This cover fits most popular computers' mouses including Apple, Commodore, IBM, and Tandy. Made from quality silver/grey fur, MouseTop comes in two varieties. One is slightly near-sighted and wears wire rimmed "granny" glasses. The other has 20/20 vision.

"We believe," says Ed Hamilton, company president and designer of the MouseTop, "We have created a mouse cover that is both fun and functional." The washable MouseTop protects the computer mouse from the grime of daily use. And, its humorous appearance can weasel a smile out of the most serious hacker.

MouseTop retails at $5.95 with glasses and $5.49 with 20/20 vision.

H&H Enterprise, a three year old company, manufactures and markets gifts for the computer enthusiast. Other products include the Friendly Computer Bug — an integrated circuit with moving eyes, a colorful tail, and a training manual — and CompuStickers — a set of 12 computer literate bumper stickers.

For more information contact H&H Enterprises, P.O. Box 2672, Corona, CA, (714) 737-1376.

Mention that you read about it in *Computer Shopper*. ●

Multi-Window

continued from page 67

we have used three windows. In the first we started the article, then continued it in the second window, and finalized it in the third. As we progressed through the article, and as ideas firmed up, contents of each window were repetively updated. Figure 5 is a dump of the screen, reflecting portions of each of the windows.

Use of three windows actually proved beneficial in this development, as ideas popped up unexpectedly and needed to be inserted in the appropriate location. Thus the entire set of windows were being concurrently expanded. The tendency of our minds to skip from idea to idea is now not a handicap! We can capture those ideas on the fly, allocating them to the window into which they best fit.

Of course, when an idea surfaces in one context it may well suggest a similar one in another context. With the use of multi-windows it is simple to quickly capture the gist of these concepts, each in its own framework, thanks to the Haba-Writer approach.

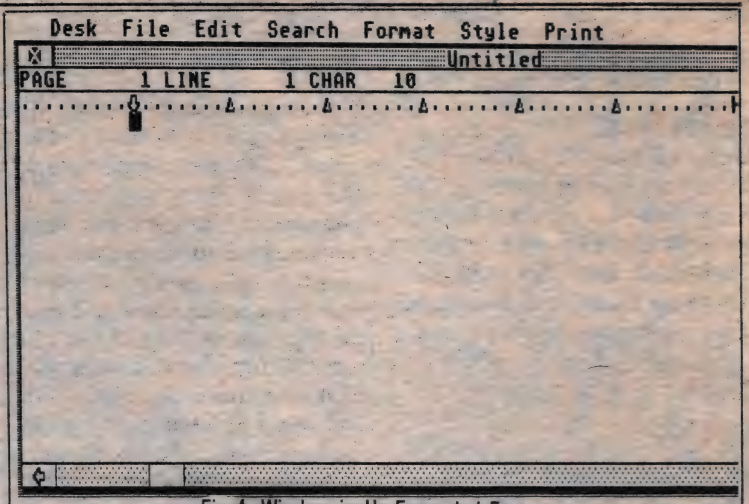

Fig 4. Window in Un-Expanded Form

Work Windows

Plainly the ability to swap all or part of a window's contents to another window is a useful tool. A paragraph which needs massaging can be transferred from the Master window in which it resides to a work window, modified as required, and returned to its original location. The work window can then be purged and is ready for the next chore.

The concept of using a work window, or work windows, as opposed to making changes directly in the Master document is well worth pursuing. You always have the original to

continued on page 190

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DEALERS WELCOMED

Hacking The ST continued from page 68

palette can be thought of as an array of 3 small numbers.

In medium resolution, the ST displays 4 colors. This is because the ST uses 2 bits for each pixel. If the ST only uses 2 bits for each pixel, how does the monitor get the 9 bits needed for the red, green and blue digital to analog converters? The 2 bits used for each pixel are used as the index into the palette. When the pixel being displayed is made up to two 0s, the ST goes to the palette and pulls 9 bits from palette[0]. The bits are sent to the D to A converters, and the monitor receives red, green and blue values.

For a pixel value of 1 (01) the ST pulls 9 bits from palette[1] and sends them to the D to A converters. The xbios 7 call (and the xbios 6 call) can be used to change the colors displayed by the ST. The xbios 7 call takes 2 parameters, the palette entry you want to change and the color you want to change it to. If the color is negative, the xbios 7 call leaves the color unchanged. This is useful because the old value is returned in register 0. If you want to find out what color was used for color[x], you can perform old_color = xbios(7, x, -1).

We can cause the ST to "Blank" the CRT by setting every color in the palette to black! It is a good idea to save the old color settings so the colors can be restored later. The program appears in listing 1. The first for loop saves the old color values and sets the new color to black. We then clear out the keyboard buffer and wait for the operator to hit a key. When a key is pressed, we restore the old colors and exit. You can change the line tint = 0; to other values to change the color the CRT displays. (A #define could also be used.)

```
#include <stdio.h>
#include <osbind.h>

main()
{
int color [16];     /* table to hold old color values     */
int x;              /* loop counter                       */
int tint;           /* color the crt defaults to          */

tint = 0;
for (x = 0;x < 16;x++) color[x] = xbios(7,x,tint);
drain();
Bconin(2);
for (x = 0;x < 16;x++) xbios(7,x,color [x];
}
```

Listing 1
A Program To Blank The Screen Of The ST

A word about the way the color bits are arranged in the palette. Since the D to A converters use a total of 9 bits, you may think that the lower 9 bits of the color word are used, but the bit arrangement is not quite that straightforward. Instead of using bits 0 through 8, the ST uses a nybble (4 bits) for each color, and the high bit is not used. With the setup used by the ST, bits 0,1 and 2 are used to control the blue color, bits 4,5 and 6 control the green and bits 8,9 and 10 control red. Bits 3,7 and 11 are not used.

This arrangement means that 0x000f is the same color as 0x0007. Listing 2 is a small program that cycles the ST through all the colors it can display. The program takes almost 4 minutes to display all 512 colors. The blues cycle most frequenly, and the reds do not show up until towards the end. You will also notice how the color word is formed from the red, green and blue values. While the ST, in medium resolution can only display 4 colors at a time, the 4 colors can be any 4 of the 512 the ST is capable of.

There is a call closely related to the xbios 7 call, the xbios 6 call is used to switch in a complete palette at a time instead of a single color at a time. The palette array must be on a word boundary, which is no problem if you are using C, because the compiler automatically takes care of it. Instead of changing just one color, the xbios 6 call changes all 16 colors at once. The palette switching actually occurs when the CRT is blanked for vertical retrace. Listing 3 is blank2.prg, which performs the same function as blank.prg, but uses the xbios 6 call to switch in the new palette.

Good news for developers, Atari has released a new relocation utility the new version of RELMOD.PRG cleans up several problems that existed in the old one. One of the biggest changes was a change from an integer to a long integer (long) for a pointer used by the program. This new RELMOD.PRG cleared up several unexplained problems we had experienced in the past.

Atari has also released ctype.h and ctype.o along with some string handling functions. There is also a BCD math package for the Alcyon compiler. I have also seen a new LIBF, the object code for the floating point package. There were several problems with the old package, and Atari claims they have been corrected. These files can be downloaded from DL7 of the Atari developers sig on Compuserve. I am surprised that Atari has failed to notify the developers that these packages are now available, especially since they correct many known problems in the compiler package.

It seems that the $5000 development systems don't come with quite the amount of support that Atari lead us to believe. In the future, I think we will think seriously about waiting the additional 12 weeks and pocketing the $2000. You would think that Atari would tend to take care of the people that put down that kind of money, but we have not really received any kind of support beyond that supplied to the people that bought the $300 developers package.

Speaking of support, the technical support at Atari has improved vastly. It seems that the learning curve at Atari was lagging behind the developers for the first 6 or 8 months the systems were out, but everyone at Atari seems to be up to speed now. Atari has also released 2 new documentation packages the first covers some GEM calls that were added when TOS was put into ROM, and the second package documents GEMDOS. The new GEMDOS manual is a must. It documents the GEMDOS calls in far greater detail than the old GEMDOS manual. It also corrects several mistakes that

continued on page 188

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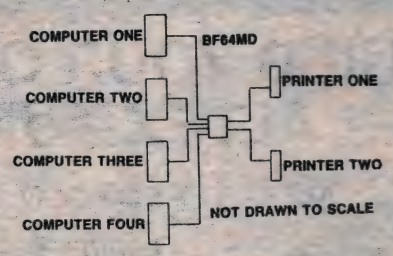

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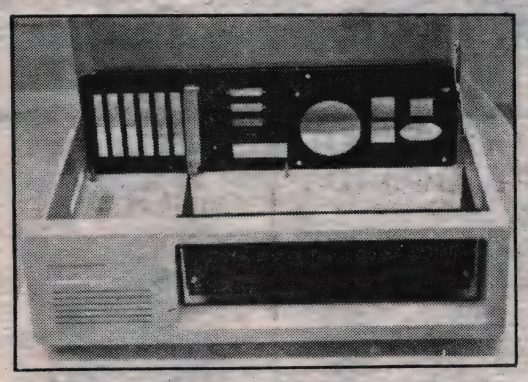

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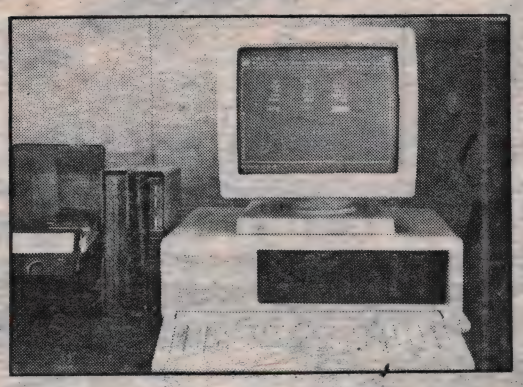

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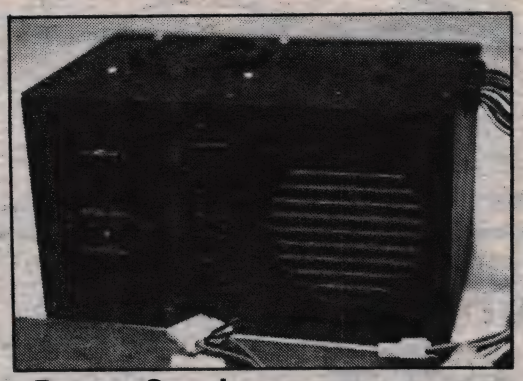

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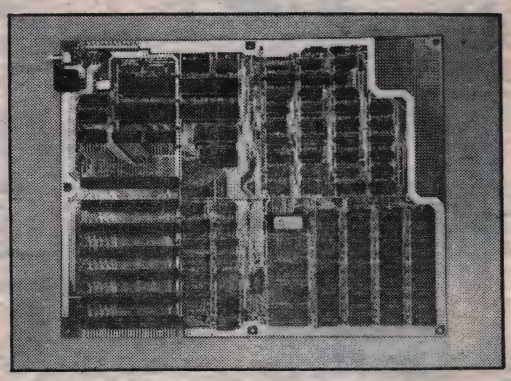

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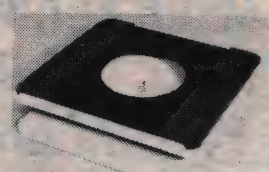

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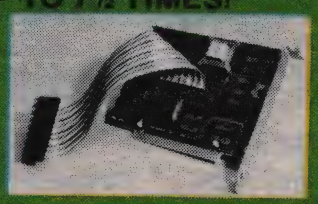

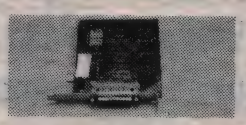

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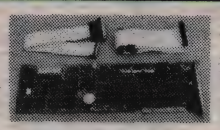

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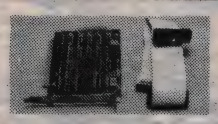

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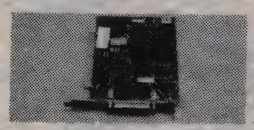

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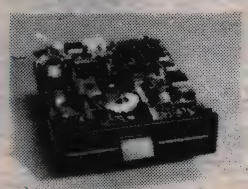

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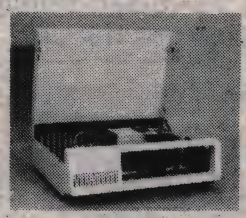

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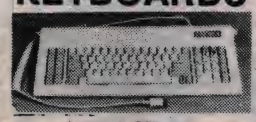

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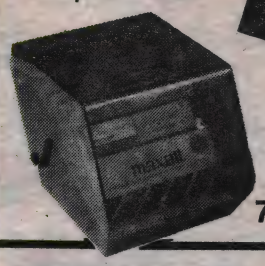

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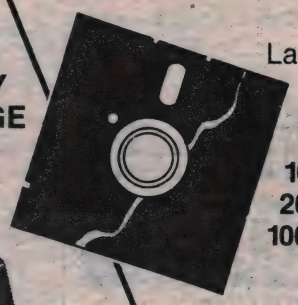

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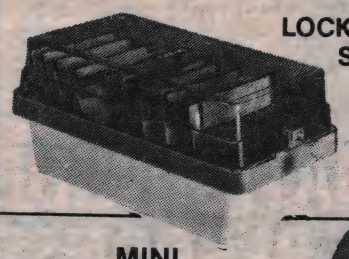

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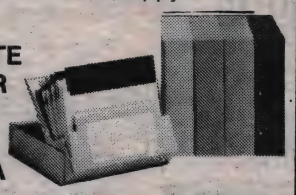

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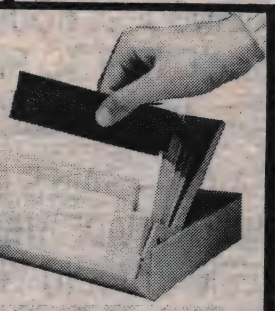

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Available in these colors:
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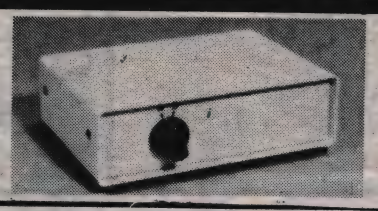
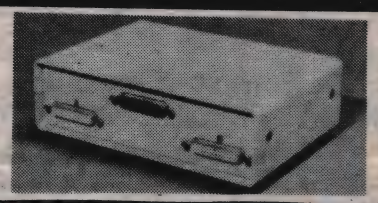
The source.

DATA TRANSFER SWITCHES





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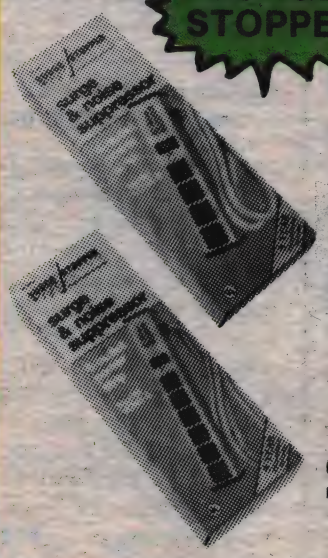

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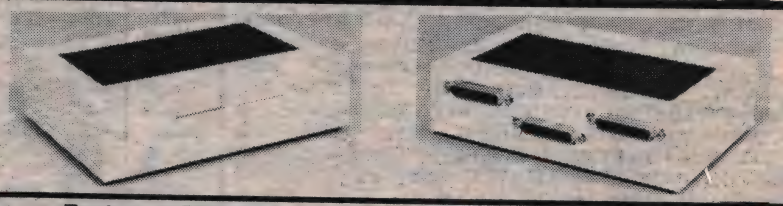

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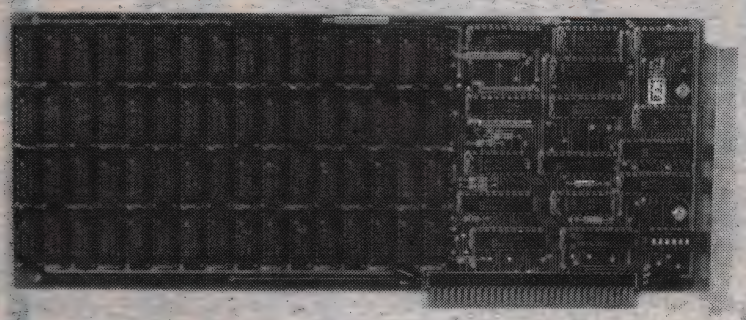
Expanded Memory For Tandy 1000

XRAM is an expanded memory board for the IBM/XT and compatibles, including the Tandy 1000. The board is designed around the latest version of the Intel/Lotus/Microsoft expanded memory specification which makes it compatible with a host of software packages that support this standard. The XRAM board can be populated with up to 2 megabytes of RAM and has provision for piggy-backing a second board. This feature allows a full 4 megabytes to be installed in the system, using only one expansion slot.



XRAM 2Mbytes Memory Board.

In addition to the expanded memory DOS driver, the XRAM is also supplied with a full diagnostics package designed to test both the hardware and the software driver, and a versatile Ramdisk Program that allows the use of any combination of normal and/or expanded memory as a RAMdisk. The XRAM, with 256k of RAM is priced at $299.95.

For further information, contact PBJ, Inc., 503 East 40th Street, Paterson, NJ 07504; (201) 523-8663.

Mention that you read about it in *Computer Shopper*. ●

CoCo Column continued from page 77

kept people with the Color Computer.

With the latest generation of computer hardware dropping startup costs dramatically, there are a lot of CoCo users who want to work with more powerful micros than the current CoCo.

I think Tandy is counting on those people, when they get tired of waiting and move on, to upgrade along the path of the Tandy 1000. This will happen in some numbers if the current CoCo is a dead end, but I think Tandy has overestimated our brand loyalty.

The 1000 is a nice machine at a good price. However, it's an IBM-PC clone and that standard is somehow not in tune with the spirit of the CoCo Community. The Atari 520ST, and even the Amiga (if the price drops significantly) are closer to the spirit of CoCo people. Business is not the thing for most CoCo owners that I know. I think that unless Tandy provides a CoCo upgrade for us, many people will surprise Tandy by jumping to machines like the Atari, which would be a crying shame and infuriating considering the loyalty shown by we CoCo users. As always, we wait a little longer and hope for the best.

In the meantime...enjoy your CoCo. It's a hell of a computer bargain you own.

To give feedback on this column and the CoCo in general you can contact me on Compuserve (ID # 72245,126) or send mail to: Michael Wafkowski, c/o *Computer Shopper*, P.O. Box F, Titusville, FL 32781. ●

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RIBBON SALE EXACT REPLACEMENTS

PRINTER (MAKE, MODEL NUMBER. Contact us if your printer is not listed. We have many more in stock. We can probably RELOAD your old cartridges.)	RIBBON SIZE Inches by Yards	NEW CARTRIDGES From the various manufacturers or made in our own shop. Ready to use.			RELOADS You SEND your used CARTRIDGES to us. WE put OUR NEW INSERTS in them.			INSERTS EZ-LOADtm DROP IN, NO WINDING! EXACT REPLACEMENTS made in our own shop. Cartridges NOT included.		
C ITOH Prowriter 1550-8510, NEC 8023-8025, APPLE DMP-IMAGEW	1/2 x 18	$15/2	$42/6	$ 78/12	$7/1	$6 ea	2 or more	$15/3	$54/12	$288/72
C ITOH STARWRITER F-10-40 / DIABLO HYTYPE II — Carbon Film Black	5/16 x 130	$18/3	$60/12	$342/72	$5 ea 3-11	$4 ea	12 or more	$24/6	$42/12	$234/72
DIABLO HYTYPE II — Fabric Black	NOT EZ LOAD 5/16 x 17	$18/2	$51/6	$ 96/12	$8/1	$7 ea	2 or more	$21/3	$78/12	$432/72
RADIO SHACK-TOSHIBA-COMMODORE-PANASONIC-RICOH	1/2 x 52	RS DMP-2200			$18/1	$16 ea	2 or more	$30/3	$57/6	$108/12
Carbon Film - DWP 210 (Hytype II) Black (1445)	5/16 x 145	$18/3	$60/12	$342/72	$5 ea 3-11	$4 ea	12 or more	$24/6	$42/12	$234/72
DW II, DWP 410-510, RICOH 1200-1300-1600 Black (1419)	1/4 x 145	$18/3	$60/12	$342/72	$5 ea 3-11	$4 ea	12 or more	$24/6	$42/12	$234/72
Red, Green, Blue, Brown Colors (1419)	1/4 x 130	$21/3	$72/12	$414/72	$6 ea 3-11	$5 ea	12 or more	$30/6	$54/12	$234/72
Fabric (Long Life), DWP 210 (Hytype II) Black (1458)	5/16 x 17 NOT EZ LOAD	$18/2	$51/6	$ 96/12	$8/1	$7 ea	2 or more	$21/3	$78/12	$432/72
DW II, DWP 410-510, RICOH 1200-1300-1600 Black (1449)	1/4 x 25	$18/2	$51/6	$ 96/12	$8/1	$7 ea	2 or more	$21/3	$78/12	$432/72
DMP-100, LP VII, COMMODORE 1525, GORILLA BANANA (1424)	Inker Loop	$18/2	$51/6	$ 96/12	----------			----------		
DMP-200, 120, (430 Inserts & Reloads Only) (1296) (1483)	1/2 x 20	$20/2	$57/6	$108/12	$7/1	$6 ea	2 or more	$15/3	$54/12	$288/72
DMP-400-420, LP VI-VIII, PANASONIC KXP-130-1093 (1418)	5/16 x 14	$15/2	$42/6	$ 78/12	$7/1	$6 ea	2 or more	$15/3	$54/12	$288/72
DMP-500 (130 Inserts & Reloads Only) (1236) (1482)	1/2 x 20	$22/2	$63/6	$120/12	$7/1	$6 ea	2 or more	$15/3	$54/12	$288/72
DMP-2100, TOSHIBA P1340-1350-1351-351 (1442)	1/2 x 20	$15/2	$42/6	$ 78/12	$7/1	$6 ea	2 or more	$15/3	$54/12	$288/72
LP-I-II-IV, CENTRONICS 730-737-739-779 (Zip Pack) (1413)	9/16 x 16	----------			----------			$12/3	$45/12	$252/72
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EPSON LQ 1500	1/2 x 14	$20/2	$57/6	$108/12	$7/1	$6 ea	2 or more	$15/3	$54/12	$288/72
MX-FX-RX 70-80-85, IBM PC (Std Paper) LX80 (5/16 x 7)	1/2 x 20	$14/2	$36/6	$ 66/12	$7/1	$6 ea	2 or more	$15/3	$54/12	$288/72
MX-FX-RX 100-185-286, IBM PC (Wide Paper)	1/2 x 30	$18/2	$51/6	$ 96/12	$8/1	$7 ea	2 or more	$18/3	$66/12	$360/72
DX 20-35 Carbon Film (Multistrike) OLIVETTI ET-101	5/16 x 290	$21/3	$72/12	$414/72	(Call for Correctable Prices)			----------		
NEC Spinwriter-Carbon Film - 2000-3500 (Reloads BCCOMPCO Only)	5/16 x 145	$18/3	$60/12	$342/72	$5 ea 3-11	$4 ea	12 or more	$24/6	$42/12	$234/72
- 5500-7700 (Can Reload Most Types)	NOT EZ LOAD 1/4 x 145	$18/3	$60/12	$342/72	$5 ea 3-11	$4 ea	12 or more	$24/6	$42/12	$234/72
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OKIDATA Pacemark 2350-2410 Black	1/2 x 100	$25 each			$20/1	$18 ea	2 or more	$36/3	$132/12	$720/72
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ML-80-82-83-92-93 (Call for ML-84 Prices)	1/2 x 16	$21/6	$36/12	$198/72						
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PANASONIC KXP-1090-1091-1092	Inker Loop	$20/2	$57/6	$108/12						
BROTHER HR-15-25-35 / COMREX DX-15, II — Carbon Film (Multistrike)	5/16 x 82	$18/3	$60/12	$342/72						
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Zuckerboard continued from page 77

jumper is in the right place.

Software for the clock/calendar is included with the board on a data disk. Two programs, one to set the clock/calendar and one to read them is all that is needed. Copy them both to your boot disk or root directory on your hard drive. Add the line CLOCK to your AUTOEXEC.BAT file and when you boot up, the date and time will be read from the board. The clock is guaranteed to be accurate to plus or minus 2 minutes a year for ten years.

The entire board is guaranteed for a period of two years. If it fails during this period the manufacturer will repair/replace it at their option providing you haven't done unmentionable things to the board.

If you have purchased the

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Achieving Your Potential
continued from page 74

not looking for "hype" from TI. Providing you with objective information and practical assistance will benefit all of us. Also, the *Computer Shopper* is independent of all of the other groups and organizations listed above. This means we have an unbiased forum to discuss the good and bad points about everything TI. I also feel that Stan is mature enough to accept constructive criticism of his publication, if it is appropriate. I must also do the same. Your comments and support are welcome.

Some years ago TI orphaned the home computer (99/4A) and it is alive and well today. It started out with less support in place than is currently available for the newly orphaned Professional (TIPC). While the future is not all bright and positive, I do not see the TIPC disappearing anytime in the near future.

There are third party software and hardware developers hard at work on TIPC products. Most of the big developers will withdraw, unless they perceive a viable market. This should leave more than adequate room for smaller developers to fill the gap with TIPC specific products. It might also provide some dedicated individual or group with a new enterprise — porting other developers latest products to the TIPC.

My current assessment of the situation is that while it may be an orphan, the TIPC is not only alive and well today, it will remain that way for years to come. The Pro is dead, long live the Pro! ●

Zuckerboard
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board with 256K of memory and want to upgrade it to 512K it is a simple matter of adding eight 256K chips and moving the one jumper to the 640K position. It should be obvious that you need to remove the board to carry out this procedure and then re-install it when you are through. Repeat the original installation procedure to install the board again.

I am using the board without any problems. I am impressed with its performance and its price. I would like to see them add the 232 port to the board since the Tandy 1000 is limited to three slots and you run out of room in a hurry. For the price you can't go wrong with the Zuckerboard!

Zuckerboard
Tandy 1000
Advanced Transducer Devices, Inc.
1287 Lawrence Station Road
Sunnyvale, CA 94089 ●

TI Forum
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Then hit enter. You get the same prompt again ("File Name:"). This time, type "DK1.CSUP". This "c99 Support" file MUST be loaded after you load ANY c99 program. Hit enter. When you get the prompt for the third filename, just hit enter this time. When asked for the "Program Name", type in "START". All c99 programs run with the program name start. Your do nothing, super-duper assembly language program should now "run". You then immediately get the "hit enter to continue" message and you have finished.

Well, how does it feel to have generated an assembly language program just like the "big boys"? For now, I just wanted to go through the mechanics of running the c99 system. If there is interest, we will make this an ongoing tutorial in c99. Write us at *Computer Shopper*. For those that write we will answer back and include a free handy-dandy programmer's reference sheet (developed by the Puget Sound 99'ers) that will help you with programming in c99 or BASIC. Just ask for it and it's yours. We may even throw in a few other c99 goodies if you ask for them. But you have to write and ask. We also plan a programming contest in the near future.

Expanding Your TI-99/4A

You have paid $75 for your TI-99/4A console and hooked it up to your TV set. Now, some money has been set aside for expanding the computer, and you are all ready to begin. Where do you start?

The first thing to keep in mind is that additional components for your computer will in most cases exceed the original price of the computer. That is certainly ironic, but if you can think of it as being lucky enough to get the console at the price you did — and not at finding the components to be overpriced, you are in good shape. The TI-99/4A, even in today's world of the Atari ST, Commodore Amiga, et al., can still hold its own.

What exactly would you like your computer to do? Many people who purchase computers have no specific reason in mind, hoping that the computer may "help out in business" or "teach the kids." Contrary to the television commercials, few computers can merely be plugged in, flipped on, and then start vacuuming the living room or getting the kids into Harvard. But a bit of time, money, and effort can go

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TI Forum
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a long way towards meeting realistic goals.

The TI BASIC programming language included with the console is not extremely flexible, and relatively few programs are available for use with console BASIC. Extended BASIC, a plug-in cartridge originally from TI itself, is BASIC and then some. Speed is increased, and quite a few extra commands and abilities have been added. Whether you are interested in BASIC programming or would like to take a small step in expanding your console, Extended BASIC can help. The price for a TI or third party Extended BASIC module should be under $50.

The next leap in expanding the TI-99/4A can be for file and program storage. With a $10 cable, a cassette recorder can be attached to store various programs and files, but cassettes are slow, unreliable, and inefficient. Cassette storage is sufficient for the very beginning, but the next alternative, disk drives, are much better. Disk drives use diskettes (also called "disks"; I do not know why there seems to be male and female varieties) like cassette recorders uses cassettes. With a disk drive, programs and files can be loaded and saved in seconds, and in any order. Programs and files can be given names on a disk, so "OLD DSK1.MYPROGRAM" would load the program called MYPROGRAM, picking it out from among the other programs available on the disk. Like a record player, a disk drive can move in jumps from program to program, unconcerned with beginnings or endings. Hence a disk uses RELATIVE filing, while a cassette can only be SEQUENTIAL — strung out from one end to the other, and listened to in only one order.

To connect a disk drive to a 99/4A, a "controller" is also needed. The controller can be a separate card, plugging into the original TI Peripheral Expansion Box (P-Box), or attached to a disk drive specifically intended for use with a TI. Third party expansion units often come with a disk controller already installed. The controller sells for approximately $100, while a disk drive, depending on type, can range from $75 to $200. With a P-Box, the drive does not need an external case and power supply, so the price will be slightly lower for the "bare" drive. Disk drives are usually better purchased new, unlike most computer components. Since disk drives have moving parts, they can become worn or mis-aligned with prolonged use. Make sure that a used disk drive is fully functional before you actually buy it! Other computer components without moving parts — such as the cards available for the TI, including the disk controller — can be purchased used. Malfunctions usually happen during the initial use of a new computer component, so once it has been established to be working, it can last for a long time without trouble.

Between a disk drive and Extended BASIC, you will have made a quantum leap from the original setup. Quite a few third party programs will now be available for use, and you will find programming to be much less tedious.

Still want to press on? Well, from the Extended BASIC/disk drive combination there is still lots of room to expand. The 32K Memory Expansion is another card (or plug-in unity, depending on whether or not you have a P-Box) which adds valuable capabilities to your computer. When coupled with Extended BASIC, a whole new spectrum of programs become available. With 32K expansion attached, Extended BASIC can load and run many assembly language programs, which include most of the third party fast-action arcade-type games that are found in such abundance. The TI Mini Memory module was once intended — at $80 — to be an inexpensive alternative to the 32K Memory Expansion, but now that the 32K expansion itself is under $100, Mini Memory is no longer economical. A few people have even managed to install the 32K memory directly into the console, for a reasonable price. And one other note — several companies have developed "512K" or "128K" cards for use with the 99/4A. In terms of available programming memory, those are actually 32K cards, but the additional memory can be used as a "RAMdisk" (pseudo-disk drive) or have other beneficial uses. 32K also allows the use of TI modules such as Logo and Editor/Assembler, which can be described in more detail in a future article.

There are some third-party word processors available that do not require the extra 32K,

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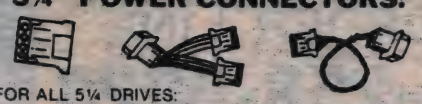

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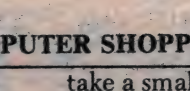

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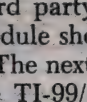

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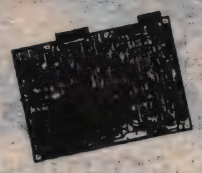

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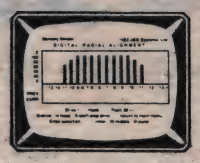

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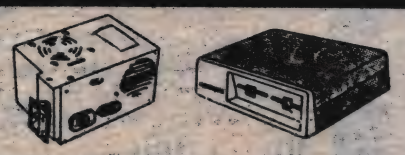

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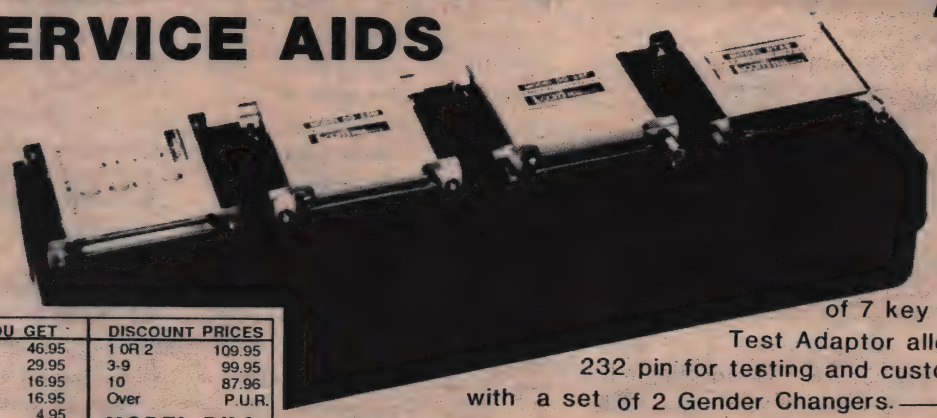

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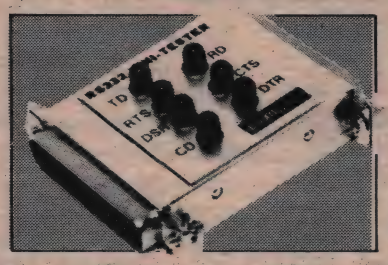

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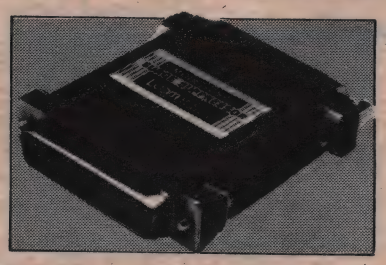

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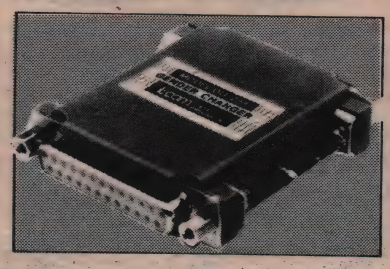
DSPS-7	2 thru 7 & 20	32.95	29.98	26.36

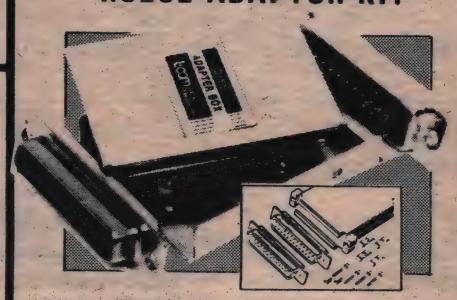
GENDER CHANGER



RS-232 GENDER CHANGERS - Are handy devices enabling the mating of wrong sex cables to equipment or to other cables. ABS encased or metalized to offer maximum shielding, will withstand extensive abuse. Four models fill most requirements.

MODEL	TYPE	GENDER	1-9	10-24	25-99
DG-25F	Std.	F-F	16.95	15.42	13.56
DG-25M	Std.	M-M	16.95	15.42	13.56
DGS-25F	Metalized	F-F	17.95	16.33	14.36
DGS-25M	Metalized	M-M	17.95	16.33	14.36

RS232 ADAPTOR KIT



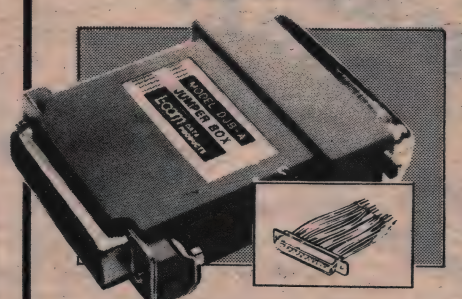
DO IT YOURSELF KIT - Allows the creation of many types of RS-232 adaptors. The following components are included in the assortments.

- 2 ea. 25 Pin D-Sub Connectors (see gender below)
- 2 ea. Snap-on half covers (UL 94VO)
- 1 set Hardware for each connector end

D-Sub connectors have solder cup terminations to accept wire leads. Choice of Plastic or Chrome Metal Housing.

MODEL	TYPE	GENDER	1-9	10-24	25-99
DIY	Std.	M-F	10.95	9.96	8.76
DIYS	Metal	M-F	12.45	11.33	9.96
DIYS-F	Metal	F-F	12.45	11.33	9.96
DIYS-M	Metal	M-M	12.45	11.33	9.96

SERIAL-PARALLEL ADAPTOR KIT



RS-232 TO CENTRONICS ADAPTOR KIT - Used to customize your own printer adaptors. The DB-25 has 25 flying leads, ready to be soldered to any of the 36 pin Centronics. Your choice of standard or metalized covers.

MODEL	TYPE	GENDER	1-9	10-24	25-99
DJBA	Std.	M-M	24.95	22.70	19.95
DJBA-2	Metalized	M-M	26.95	24.52	21.56

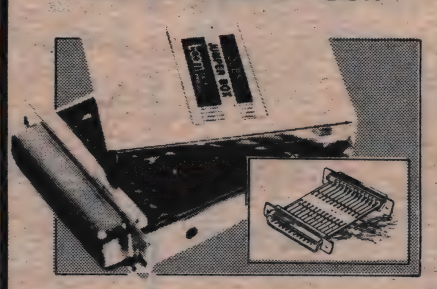
Ask us to quote on Custom RS232 Adapters

RS232 TEST ADAPTOR

A minature **DATA TEST ADAPTOR** provides ready access to all 25 lines of the RS-232 interface. Only 2" x 2.5" x 0.5" in size. Has one male and one female connector for inline use. All 25 pins of each connector terminate to individual sockets which allow the two connectors to be interwired or jumped in any pattern. Comes complete with 20 jumper wires. Shielded Chrome Metal construction.

MODEL	TYPE	1-9	10-24	25-99
DTAS	Metal	29.95	27.25	23.96

RS232 JUMPER BOX

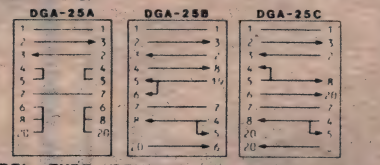


DATA JUMPER BOX - Used to customize RS-232 interface devices. All 25 pins of the D-Sub Connectors terminate to 25 solder pads. The PC Board layout makes it easy to wire your own adaptor. Supplied with 25 wires already stripped for permanent wiring. Many interfaces could be built, null modems, pin reversers, you name it. Supplied with PC Board already soldered in place. Snap-on Chrome Metal covers and appropriate hardware are unassembled. Your choice of genders.

MODEL	TYPE	GENDER	1-9	10-24	25-99
DJBS	Metal	M-F	21.95	19.97	17.56
DJBS-F	Metal	F-F	21.95	19.97	17.56
DJBS-M	Metal	M-M	21.95	19.97	17.56

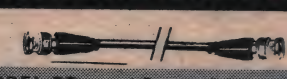
MODEM ADAPTOR

MODEM ADAPTORS - Eliminate the need for modems when connecting local terminals together or terminals to computer. Circuit codes are shown to identify pin connections.

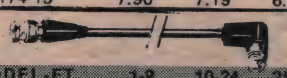


MODEL	TYPE	GENDER	1-9	10-24	25-99
DGA-25A	Std.	M-F	16.95	15.42	13.56
DGA-25B	Std.	M-F	16.95	15.42	13.56
DGA-25C	Std.	M-F	16.95	15.42	13.56

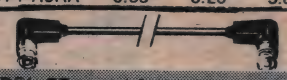
COAXIAL CABLES



MODEL-FT	1-9	10-24	25-99
CC58C-1	3.55	3.23	3.05
CC58C-1.5	3.70	3.37	3.18
CC58C-2	3.85	3.50	3.31
CC58C-2.5	4.10	3.73	3.53
CC58C-4	4.40	4.00	3.78
CC58C-5	4.65	4.23	4.00
CC58C-10	6.05	5.51	5.20
CC58C-15	7.45	6.78	6.41
CC58C-25	10.75	9.33	9.25
CC59B-1	3.65	3.32	3.14
CC59B-2.5	4.00	3.64	3.44
CC59B-5	4.75	4.32	4.09
CC59B-10	6.25	5.69	5.38
CC59B-15	7.75	7.05	6.67
CC59B-25	10.75	9.78	9.25
CC59B-50	18.25	16.61	15.70
CC59B-100	33.25	30.26	28.60
CC62A-1	3.60	3.28	3.10
CC62A-2.5	3.95	3.59	3.40
CC62A-5	4.70	4.28	4.04
CC62A-10	6.15	5.60	5.29
CC62A-15	7.60	6.92	6.54
CC62A-25	10.50	9.56	9.03
CC62A-50	17.75	16.15	15.27
CC62A-100	32.25	29.35	27.74
CC174-1	3.60	3.28	3.10
CC174-1.5	3.75	3.41	3.23
CC174-2	3.90	3.55	3.35
CC174-2.5	4.05	3.69	3.48
CC174-4	4.50	4.10	3.87
CC174-5	4.80	4.37	4.13
CC174-10	6.35	5.78	5.46
CC174-15	7.90	7.19	6.79



MODEL-FT	1-9	10-24	25-99
CC58C-1RA	4.90	4.46	4.21
CC58C-1.5RA	5.05	4.60	4.34
CC58C-2RA	5.20	4.73	4.47
CC58C-2.5RA	5.35	4.87	4.60
CC58C-3RA	5.50	5.00	4.73
CC58C-4RA	5.80	5.28	4.99
CC58C-5RA	6.10	5.55	5.25
CC58C-7.5RA	6.85	6.23	5.89
CC58C-10RA	7.60	6.92	6.54
CC59B-1RA	4.90	4.46	4.21
CC59B-1.5RA	5.05	4.60	4.34
CC59B-2RA	5.20	4.73	4.47
CC59B-2.5RA	5.35	4.87	4.60
CC59B-3RA	5.50	5.00	4.73
CC59B-4RA	5.80	5.28	4.99
CC59B-5RA	6.10	5.55	5.25
CC59B-7.5RA	6.85	6.23	5.89
CC59B-10RA	7.60	6.92	6.54
CC62A-1RA	4.90	4.46	4.21
CC62A-1.5RA	5.05	4.60	4.34
CC62A-2RA	5.20	4.73	4.47
CC62A-2.5RA	5.35	4.87	4.60
CC62A-3RA	5.50	5.00	4.73
CC62A-4RA	5.80	5.28	4.99
CC62A-5RA	6.10	5.55	5.25
CC62A-7.5RA	6.85	6.23	5.89
CC62A-10RA	7.60	6.92	6.54
CC174-1RA	4.90	4.46	4.21
CC174-1.5RA	5.05	4.60	4.34
CC174-2RA	5.20	4.73	4.47
CC174-2.5RA	5.35	4.87	4.60
CC174-3RA	5.50	5.00	4.73
CC174-4RA	5.80	5.28	4.99
CC174-5RA	6.10	5.55	5.25
CC174-7.5RA	6.85	6.23	5.89



MODEL-FT	1-9	10-24	25-99
CC58C-1RA2	6.25	5.69	5.38
CC58C-1.5RA2	6.40	5.82	5.50
CC58C-2RA2	6.55	5.96	5.63
CC58C-2.5RA2	6.70	6.10	5.76
CC58C-3RA2	6.85	6.23	5.89
CC58C-4RA2	7.15	6.51	6.15
CC58C-5RA2	7.45	6.78	6.41
CC58C-7.5RA2	8.20	7.46	7.05
CC58C-10RA2	8.95	8.14	7.70
CC59B-1RA2	6.25	5.69	5.38
CC59B-1.5RA2	6.40	5.82	5.50
CC59B-2RA2	6.55	5.96	5.63
CC59B-2.5RA2	6.70	6.10	5.76
CC59B-3RA2	6.85	6.23	5.89
CC59B-4RA2	7.15	6.51	6.15
CC59B-5RA2	7.45	6.78	6.41
CC59B-7.5RA2	8.20	7.46	7.05
CC59B-10RA2	8.95	8.14	7.70
CC62A-1RA2	6.25	5.69	5.38
CC62A-1.5RA2	6.40	5.82	5.50
CC62A-2RA2	6.55	5.96	5.63
CC62A-2.5RA2	6.70	6.10	5.76
CC62A-3RA2	6.85	6.23	5.89
CC62A-4RA2	7.15	6.51	6.15
CC62A-5RA2	7.45	6.78	6.41
CC62A-7.5RA2	8.20	7.46	7.05
CC62A-10RA2	8.95	8.14	7.70
CC174-1RA2	6.25	5.69	5.38
CC174-1.5RA2	6.40	5.82	5.50
CC174-2RA2	6.55	5.96	5.63
CC174-2.5RA2	6.70	6.10	5.76
CC174-3RA2	6.85	6.23	5.89
CC174-4RA2	7.15	6.51	6.15
CC174-5RA2	7.45	6.78	6.41
CC174-7.5RA2	8.20	7.46	7.05

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Layman's Guide

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response to the programmer's specifications. For languages like COBOL, these generators can provide a 100 to 1 increase in the number of source lines the programmer produces in a given period.

Non-computer related activities are also benefiting from the application of AI techniques to planning and decision support. The computer's speed and the AI techniques are useful in almost any walk of life. When you cannot work any harder, you must begin to work smarter. Using the tools available within some of the newer software packages, the computer can help you plan how to get more done.

Business decisions, and other decisions too, require support. The facts must convince the people that it is a good decision. One which they can support. The "what if?" began with the spreadsheets and the computer's high speed recalculation ability. With the introduction of AI this same type of investigation can be carried out with non-numeric values. Using one of the decision support packages many more variables can be considered and manipulated. Everybody's input can be considered.

By applying the same software concept to manufacturing, the easiest and fastest way to make a part or assembly can be determined before the factory, machines or people are present. Product changes, improvements, problems and other situations can be subjected to computer analysis. This does not replace the human captains of industry, it just gives them the means to become admirals.

These programs and the computers to run them are at our level now. ARBORIST, EXPERT CHOICE, EXPERT EASE, and others are available for today's microcomputers. We can also interface with larger computers via telecommunications to solve larger problems. As you put more of your expertise and acquired knowledge into the system, you will be able to use the system more efficiently. Part of this will be learning by you and part will be learning by the system. You're both getting better.

Engineers often feel like they are being required to reinvent the wheel. Regardless of the discipline, most new projects are modifications, extensions, recombinations or innovations of something that has been done before. Using the knowledge base of an expert system, the new project specifications will provide the inference engine with the information it needs to solve the problem. The solved problem now becomes part of the knowledge base to be used in the solution of the next problem.

This same technique is being applied to other professions. Law and medicine are two. As the use of AI in computers expands into the areas where computers are already present, we should be able to reap the benefits of this improved decision making. Whether or not we do will depend on us.

All of the computers discussed so far have been digital. They function with only two possibilities, on or off, 1 or 0. This is perfect for numerical processing. Not everything can be reduced to numbers and numerical or algorithmic formulas and logic. We think in symbols and we think faster than the most sophisticated computer yet conceived. Therefore, to gain the maximum benefit from the memory and speed of a modern computer, it must be able to process symbols.

ASCII and EBCDIC have reduced letters and numbers to 1s and 0s for digital computer use. Some functions even appear to be symbol oriented. COBOL uses words (symbols?)

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TI Forum

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but most do. But to use the 99/4A as a word processor also requires a printer, so that information can be printed out after being composed on the screen. Many other programs, such as "database," or information storage utilities (e.g. a mailing list or recipe book stored on the computer), also function well with a printer.

Just as the disk drive requires a disk controller, though, a printer requires its own controller: an "RS232" interface. The RS232 costs less than $100 as well, and can be found in as many forms as the disk controller can — card, add-on box, or even included inside some printers. Printers themselves can be separated into two general types: letter quality, and dot-matrix.

With a disk controller/drive, 32/128/512K memory expansion, an RS232 card, and a printer, you will have a fairly complete system. With this hardware, you can find the software you need to accomplish quite a few tasks that the other brands of computers boast so much about. The RS232, in fact, offers some interesting possibilities. Not only can the RS232 connect your computer to a printer, but it can also serve as the gate to the outside world for your computer. With the appropriate equipment, you can indeed have your computer turn your lights on and off, set your thermostat, or even run your model train set. Vacuuming the living room floor isn't as far off as it may first seem!

There is one additional possibility with the RS232: that of connecting a modem to the computer. A modem allows your $75 TI-99/4A to use a regular phone line to "talk" to other, much-more-than-$75 computers. With a modem, you may find a whole new dimension to your computing hobby. In an upcoming article(s), we will examine in depth the abilities that a modem can add to your computer, and the ins and outs of "telecommunications." Just when you thought you were done expanding... ●

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Layman's Guide
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to perform functions. It can also put a list of names in alphabetical order. Names are symbols, right? My name represents me and I am a unique individual. So are you. But, what are we deep in the silicon heart of the computers that keep track of what we are doing, earning, spending, etc? Just a pattern of 1s and 0s, still. The computer doesn't "know" either of us. It can only compare the pattern of 1s and 0s that represent your name to the one that represents mine and tell us that they are different. We've known that for a long time.

To rise above 1s and 0s, we need symbols. To use the computer we need one that works with symbols. The special languages of AI are the list processing languages. Starting with Information Processing Language (IPL), in versions 1 through 5, improvements have been made and languages created to do list processing. LISt Processor (LISP) is the most popular of the AI languages. What makes the list processor different from other languages and how it works within an AI program will occupy the balance of this installment. You will not become a programmer by careful study of this material.

List processing is an associative process. Each symbol is "associated" with another symbol or list of symbols. To do this the list processor uses a two part element. That is, it holds the symbol in one part or field and a pointer in the other part or field. The paired fields are called a cell. In a complex list the first fields may contain a pointer to a symbol, rather than the symbol. This system permits each cell to be independently located in memory. Independent location means that you are no longer required to specify memory allocation. It also frees you from other chores, such as the predefinition of data types and it permits you to use the lists that are the program as data for the program. In a simple word — recursion. To define a term using the term is recursive. Recursive programming means including the program as another part of the program.

The independence of the cells permits dynamic use of memory. This means that the program can expand or contract in size as necessary. You still have to live within the limits of available memory. It also means that one list processor program can be data for another or for itself. What does this mean to you in simple terms? LISP data and program

continued on next page

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Layman's Guide continued from page 185

instructions have an identical format. This means that information about object properties (declarative knowledge) can be easily integrated with action information (procedural knowledge). This also means that the program can add to or modify the original instructions. And, yes, one LISP program can write a new LISP program.

LISP is interpreted rather than compiled. This means that the instructions are converted to machine language as used rather than all at once. Since LISP can modify or add instructions, it would slow the system almost to a halt if recompulation were required each time a change was made. Only after the program is complete does the compiling into machine language provide advantages. The interactive feature of LISP is still available, as required, during execution.

The LISP language has been around for a number of years and there have been many users. Some of them have done extensive work on ways to make it easier to use LISP. They have created "environments." Within these environments you will find editors, debuggers, windows and such. You can benefit from all of their hard work, if you are willing to pay for the products that have been produced. Or, you can work long and hard and maybe reinvent the wheel. The choice is yours.

Without trying to confuse you, I think a simple introduction to LISP is in order. Starting at the bottom, or smallest element, and heading upwards, we have the atom. This is the smallest LISP unit and may be a single letter, number or symbol, or it may be a word or string of letters and symbols. The following are valid LISP atoms: 5, .095, +, QWERTY, TEXAS-INSTRUMENTS. The next larger unit is the list. A list is a series of atoms enclosed in parentheses. The following is a valid LISP list: (.95 D CHAIR BOY-O-BOY). Together, atoms and lists are called expressions.

To get things done, there are "procedures." A procedure is an element in a list that specifies how something is to be done. There are some procedures built into LISP. They are called primitives. The basic arithmetic functions of add, subtract, multiply and divide are primitives. LISP also contains the means for a programmer to define other procedures. Beyond this, are the symbol manipulation functions. I won't attempt to confound you with confusion, so I'll stop.

All living languages have dialects. LISP is no exception, there are several dialects. Since there are both versions and dialects, it is reasonable to assume that there are also incompatibilities. It is also reasonable to assume that if there is one AI programming language, there are also other AI languages. There are several. Among the better known are PROLOG, POP-2, SAIL and SMALLTALK. Another language, SNOBOL4 has just moved into the microcomputer arena in the form of SNOBOL4+. We may be hearing more about it as more programmers get into AI.

As with each previous installment, I seem to generate more questions than answers. I can accept and even encourage computers in education. I cannot condone the replacement of teachers in classrooms with dumb machines. Were I a silicon based IC or even a VLSIC, the computer might be an appropriate teacher. I am not, nor are my children. They are all too human and thrive on the "warm fuzzies" given them by caring, feeling, human teachers.

There have been a number of science fiction novels that have incorporated the "total computer" concept which eliminated the need for actual physical contact between humans. They also include a rebel/hero who doesn't accept the status quo. This makes the story exciting and keeps us in touch with the characters. True, we all need private space and private time. True, using the computer can reduce delays and assist us. True, using the "time is money" theory, we can do more in less time via computer. Is it then also true that we would be happiest and most productive if we were isolated with our computers continuously? So long as we retain our humanity, I think not.

If we are to retain our humanity, we cannot allow others to herd us into this concept of isolated, networked, computer controlled form of existence. The computer is a tool of man, not his master.

Next time we'll look at some of the tools of expert systems development and the machines being used. ●

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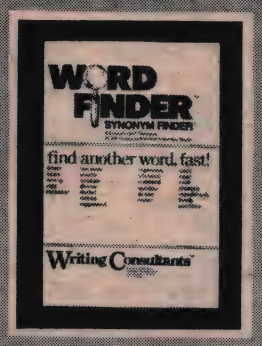

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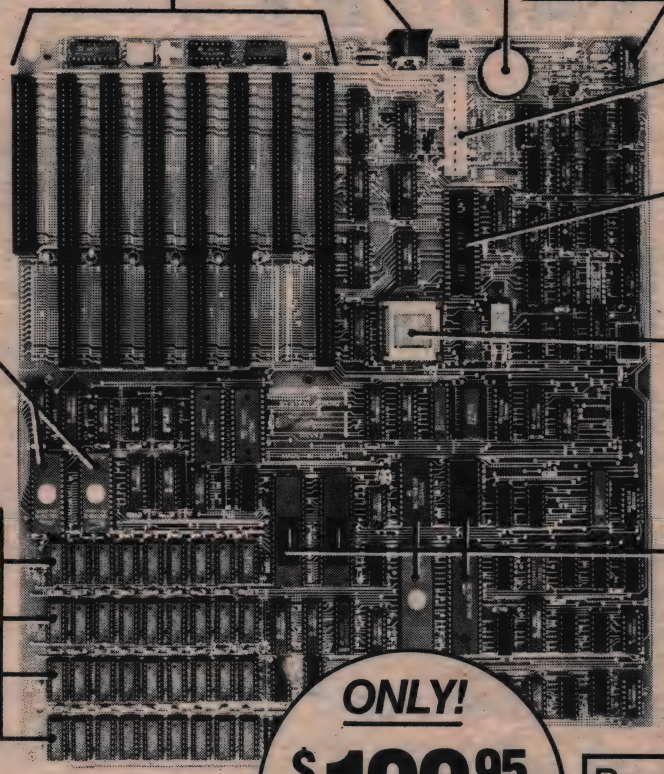

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Hacking The ST continued from page 176

appeared in the earlier version.

I'd like to cover one more xbios call this column. The Supexec call, xbios 38 is used to execute code in the supervisor mode. The supervisor mode is used to execute privileged instructions and to access otherwise protected locations in the ST. The Supexec call takes one argument, the address of a code segment to be executed in the supervisor mode. You may wonder how you pass the address of a code segment to a function. In C, you can pass the address of a function to a function by simply using the name, provided that the function in question has been declared. If peekb is a function in one of our libraries, then we can execute peekb in the supervisor mode by using code similiar to the following:

```
int demo()
/* this function is a demo of
how to use the xbios 38 call */
{
int peekb();

xbios(38,peekb);
}
```

Since peekb was declared as function (by the () after the name) the compiler will pass the address of peekb to the xbios 38 call. There are some shortcomings to using the Supexec call. You cannot pass arguments to a function being executed with the Supexec call. As an example, xbios(38,peekb (27)); will not work. You cannot execute bios or GEMDOS calls in a function that is running under the Supexec call. You can get around the parameter and result passing problem by using globals to pass information into and out of the function running under the Supexec call, but it really makes more sense to use the GEMDOS Super call for these situations.

Last month I discussed pro-

continued on page 190

```
#include <stdio.h>
#include <osbind.h>
int red;            /* red value                    */
int green;          /* green value                  */
int blue;           /*blue value                    */
main()
{
int color[16];      /* table to hold old color values */
int x;              /* loop counter                 */
int shade;          /* color number                 */
int tint;           /* color the crt is set to      */
red = 0;
green = 0;
blue = 0;
/* save old colors */
for (x = 0;x < 16;x++) color[x] = xbios(7,x, -1);
/* show all possible colors */
for (shade = 0;shade < 512;shade++)
    {
    tint = (blue + (green * 16) + (red *256));
    for (x = 0;x < 16;x++) xbios(7,x,tint);
    delay(1000);
    bump_color();
    }
/* restore the original palette */
for (x = 0;x < 16;x++) xbios(7,x,color[x]);
}
int bump_color()
/* this function increments the color value    */
/* you cannot use a straight increment         */
/* because the red, green and blue bits are    */
/* nybble aligned.                             */
{
blue++;
if (blue == 8)
   {
   blue = 0;
   green++;
   }
if (green == 8)
   {
   green = 0;
   red++;
   }
}
```

Listing 2
Program To Display All 512
Colors On The ST

```
#include <stdio.h>
#include <osbind.h>
main()
{
int old[16];        /* old palette settings         */
int new[16];        /* new palette settings         */
int x;              /* loop counter                 */
/* save old colors */
for (x = 0;x < 16;x++) old [x] = xbios(7,x, -1);
/* set up new colors */
for (x = 0;x < 16;x++) new [x] = 0;
/* install new palette */
xbios(6,new);
/* wait for exit queue */
drain();
Bconin(2);
/*restore the original palette */
for (x = 0;x < 16;x++) xbios(7,x,old[x];
}
```

Listing 3
Another Way To Blank The
CRT Of The ST

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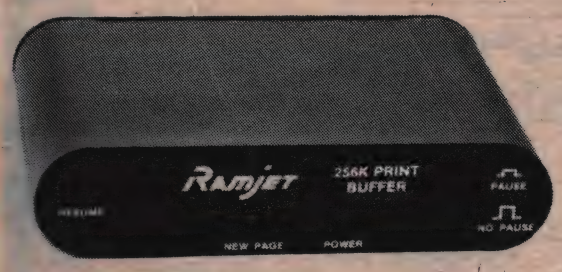

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Hacking The ST
continued from page 188

gram extents, and this month I would like to say a few words about paths. Since the ST has a file structure that supports subdirectors, specifying a file is not as simple as in older operating systems such as CP/M. Since a file can be in a folder that is in a folder, and so on and so forth, file names can get quite involved. If we have a folder on the B drive that is named FOLDER1 that contains a folder named FOLDER2, the way to access a file named TEST.DAT in FOLDER2 depends on where you are in the system.

To get around in the file structure of the ST you have to know a few terms. The most important term to be familiar with is "current directory." The current directory is the directory you are in now. Another important term is "root directory." The root directory is the main directory of a drive. The first window you open on a drive will display the root directory.

If you are in a directory on the A drive and you want to access the TEST.DAT file on the B drive, the full path would be: B:\FOLDER1\FOLDER2\TEST.DAT. If you happened to be in the FOLDER1 folder in the B drive at the time, the path would be FOLDER2\TEST.DAT. In the second example, the current directory was B:\FOLDER1 so you could use a relative path name. A relative path name does not have a leading backslash (\) while an absolute path does. The relative path is relative to the current directory. An absolute path is relative to a root directory.

If you are in B:\FOLDER1 and you use \FOLDER2\TEST.DAT, the leading backlash binds the path to the root directory. This means that the system will try to find B:\FOLDER2\TEST.DAT when you are really looking for B:\FOLDER1\FOLDER2\TEST.DAT. These distinctions are not apparent when working with the icons and windows of the desktop, but they become very important when working with files within your programs.

A quick word to the newcomers to C, to get the backslash characters compiled into a path it is necessary to use a double slash in the path like this: B:\\FOLDER1\\FOLDER2\\TEST.DAT. The reason for this is that the C compiler uses the backslash character as an escape character. You will often see \n, \r, \b, \t and \0 in C programs. These are control characters that are difficult to represent without an escape sequence.

\n is a linefeed, \r is a carriage return \b is a backspace and \t is a tab character. The \0 should be familiar, it is the null character used to terminate strings. ●

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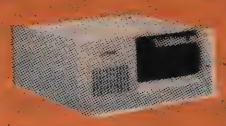

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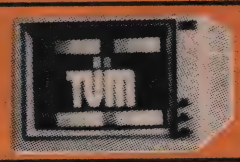

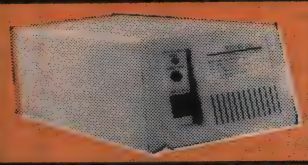

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Multi-Window
continued from page 175

fall back on, reference, etc. If you find yourself going off on a tangent it is easy to return to ground zero and start anew. I recommend it.

Multi-Windows And The Planning Process

A Multi-Window approach lends itself well to the structured, top-down planning process. In one window the overview plan can be produced. Subsequently, in logically subordinate windows, details of the plan can be developed module by module. Each module can be matched to the upper level, a lateral level, or to subordinate level modules. For example, the upper window may address a system level plan, the next level its two major components (say, hardware & software). Each of these in turn can treat ever-lower level elements of the plan. Under hardware there might be expansion treating the computer and peripherals. Under software, main program and supporting programs. If 6 windows available in HabaWriter are not enough, as each is

continued on page 193

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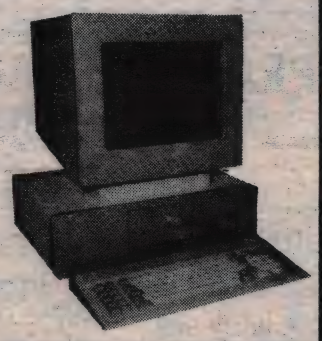

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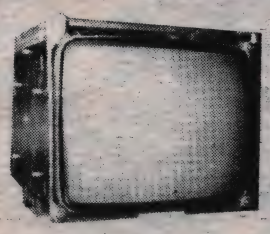

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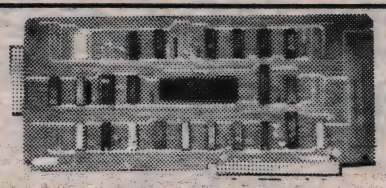

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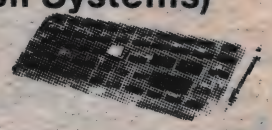

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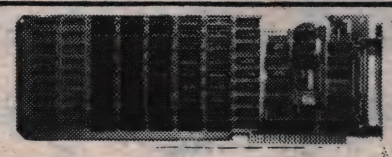

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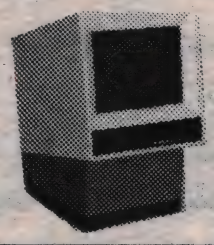

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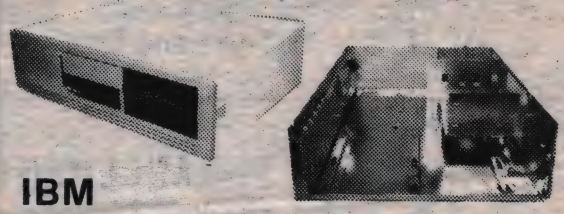

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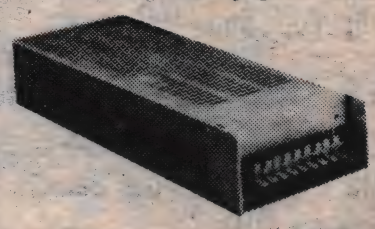

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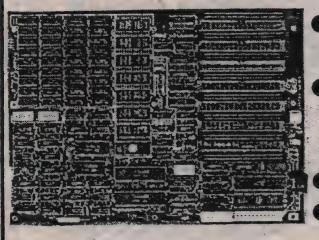

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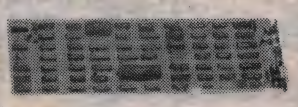

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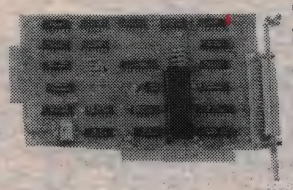

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Applying The Atari continued from page 72

sort on volume 1, I decided to try the whole list at once. With over 825 filenames, your alphabetizer did the sort in less than three minutes.

Frank Walters
Panama City, Florida

Frank's program is found under Listing 3. When you run the program, you're asked if you're using one or two drives. Two drives will minimize disk swapping, but one drive can still be used satisfactorily. Now you're asked to enter a filename that you want to save the data file as. Enter a name. This file will contain all the names of the various programs you own, and the diskette on which it is placed will be hereafter referred to as the data diskette.

The next prompt asks if this is a new file or if you are appending to an existing file. Since you have not yet used the file, type N for New. When you use ABCDIR in the future and want to add to the existing file, you'll type A for append.

Next you'll be instructed to insert the READ disk into drive

continued on page 194

Multi-Window continued from page 190

generated it can be appended to the upper level, leaving the window available for further use.

Other Uses

The pattern repeats itself for a broad spectrum of other users. If the subject addressed can be decomposed into modules, and these modules analyzed and generated separately, then a multi-window word processor can be used to advantage. Even, in fact, when the subject seems not to fit this mold one may force-fit its structure into a decomposition/re-combination framework. At that point the relationships can be examined, preferred alternative approaches identified, and a more comprehensive, integrated result produced.

Thus, if we are locked into sequential development of a topic, here again HabaWriter comes to our aid. In one window we can outline the subject; and in a second window we can then develop our thoughts. We can conveniently switch from outline to product by either displaying both windows simultaneously, or by alternating between the two windows.

Another application of multi-window word processing arises in computer-aided learning. The subject to be learned can be treated in an expository manner in the first window. In another window a sequence of questions related to the subject can be framed. Finally, a third window can contain the answer to the questions.

The student can read the exposition in window 1, then test himself with the contents of window 2. Window 3 is read to correct any misconceptions, or to reinforce the students understanding. For review the student merely returns to the questions. If he has problems with the questions he can return to the source material in window 1.

The size of the lesson can be varied to reflect the complexity of the material, the time span of attention, available student time, as well as other considerations.

A simple flashcard approach is also possible with two windows synchronized with the answer in one window corresponding to the question in the other. Words, sentences, and paragraphs of a foreign language can be learned this way.

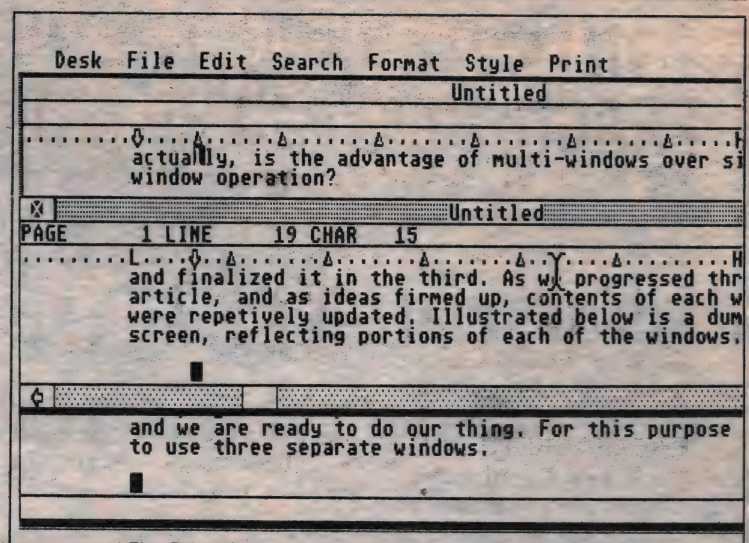

Fig. 5 Dump of screen with portions of each window

Occasionally, as an essay is written, a thought won't materialize or some information is lacking. Merely insert a symbol in the appropriate location. Later, when all your thoughts come together, complete the entry in a second window and transfer with a search and replace instruction. This is especially useful when the content of the second window is usable in several locations in the document, or in several documents.

The multi-windows are useful, also, when a complex illustration is being explained. The illustration can be kept in view, or alternately displayed, while the explanation is being written. Thus easy cross-reference is provided. The same concept applies to explaining a table of data, a graph, a diagram, or any entry which needs to be examined as it is written about.

Summary

By now it should be evident that having multi-windows available is often extremely helpful. HabaWriter meets this need by providing six windows, each busily doing its own thing. To the user this is a flexible, easily used solution to a complex problem. ●

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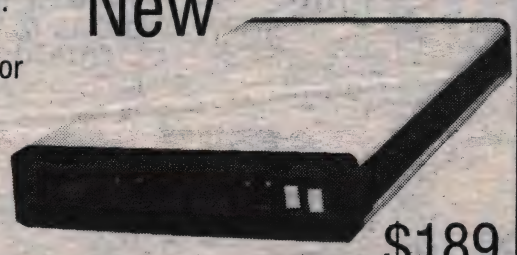

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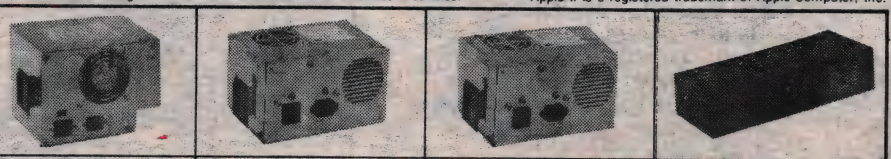

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Applying The Atari
continued from page 193

1 or 2 depending on the number of drives you are using. The WRITE disk refers to the data diskette. The READ disk refers to each of your program diskettes that will have its directory read. You'll be asked to name or number each successive READ disk, and a maximum of three characters can be used for this purpose.

When you've finished entering disks, press RETURN for the "Disk name or number" prompt and the program will end. Now, load the February 1986 Instant Alphabetizer program (make sure you save ABCDIR first!) and change line 910 to the following:

```
910 POKE 881,0:OPEN #3,8,I,D$:
PRINT #3;DAT$(1,C*LN+3);
```

This makes the Instant Alphabetizer file-compatible with ABCDIR. Re-save Instant Alphabetizer with this simple modification and then run it. When the menu appears, select the Load file option. Insert your data diskette (the WRITE disk) and type the name of the file that you used. When the file is loaded, press A for the "ADD ITEMS AND REALPHABETIZE" option. But instead of adding entries, just press RETURN, since we are only interested in alphabetizing the file names that are in memory. When you're returned to the main menu, you can DISPLAY the alphabetized list of your programs or PRINT the list on the printer.

If you want to save the alphabetized file, choose the SAVE option and re-enter the name of the data file. When your diskette collection grows larger, you can use ABCDIR to add more file names to the alphabetized file (select APPEND FILE this time). You can then re-alphabetize this file. Make sure you make the modification on line 910 of the Instant Alphabetizer, or else you'll get extraneous characters in the file.

ATASCII Lister II

Listing 4 is a new version of ATASCII Lister that includes enhancements submitted by Phil Snider. The complete listing is included here, and contains all previous enhancements, such as the left-hand margin. The program works with Epson, Gemini, and graphics-compatible printers. Phil writes:

I have thoroughly enjoyed using the ATASCII Lister program you published back in July 1985. The program printouts are nice to have around for quick, easy reference, and a big help in finding one's errors after typing in a program (this was before Program Perfect).

Several months ago, I made some enhancements to your original program to skip over the perforations for listings over one page long and to line feed the paper to the top of the next page after the completion of a listing. Also, when a single listing or the last listing in a multiple set is finished printing, the paper is form fed one blank sheet so the completed listing is ready to be torn from the web.

When the program is run, you will be prompted with the question "Will there be more than one listing? (Y/N)." If you need two or more program listings in one sitting, press y. When the first listing is finished printing, the paper is line fed to the top of the next page and the program runs itself again.

If you need a single program listing or you are printing your last program listing in a multiple set, press N when the progam asks "Will there be more than one listing? (Y/N)." This time when the printing is done, the paper is line fed to the top of the next page as before, and then the paper is form fed one blank page. Your printout or printouts are now ready to be torn off the web.

As for skipping over the perforations, when the program counts 62 printed lines, it executes four line feeds, resets the line counter and continues on.

The printouts are in neat order (no more printing on the perforation) and you don't have to keep resetting the paper to the top of the page or feeding the paper manually to a tearing-off point. I have found these enhancements to be quite handy and hope they will be beneficial to your readers. *Phil Snider*
Chattanooga, Tennessee

Holograph stickers are on their way to Frank Walters and Phil Snider and I thank both of them for their valuable contributions.

Digitized Sounds

Next month, I'll review a sound digitizer. This piece of hardware enables you to store real-life sounds in your Atari, just as a video digitizer (i.e. ComputerEyes) lets you store real-life images. In preparation for this review, I am including several digitized sound samples on this month's diskette (see end of article for information on purchasing monthly diskette). I had loads of fun sampling these sounds and hope you'll be equally excited listening to them.

Next Month

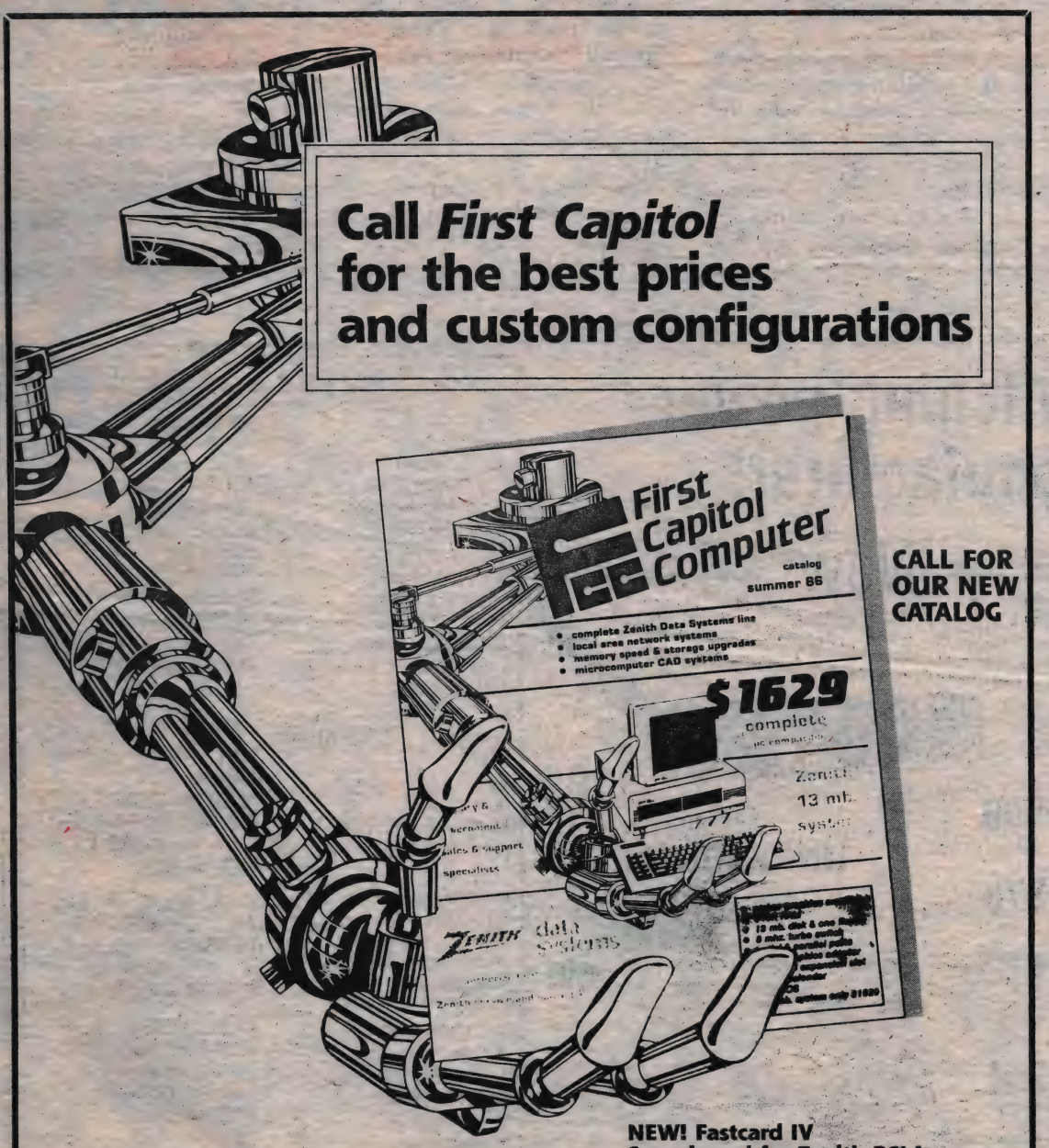
A computerized telephone book is in the works for next month. We'll also have more reader mail, new products, and some details on Atari's new CAD/CAM machines.

Readers' questions, comments and contributions are welcome. Please enclose a self-addressed, stamped envelope (SASE) for a personal reply.

A diskette of the programs listed in this month's column is available from the author for $7.00, postpaid. Please make checks payable to "Jeff Brenner" and specify your disk drive model.

"Program Perfect" is a utility used to check for typing errors while entering programs from this column. Readers may send $5.00 for a diskette or a SASE for a listing of this program.

Address all correspondence to: Jeff Brenner, "Applying The Atari 7/86", c/o *Computer Shopper*, P.O. Box F, Titusville, FL 32781-9990. ●



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Samna Supports New HP Laserjet 500 Plus Printer

Samna Corporation recently announced that its office automation software products, Samna Word III and Samna+, support Hewlett-Packard's new LaserJet 500 PLUS laser printer.

Businesses need the capability to produce near-typeset quality documents in house, on demand. Using a Samna word processing program with a personal computer and a laser printer satisfies this demand, and reduces operating costs without sacrificing quality. And it saves companies hours of production time for making crucial business decisions."

Samna users can take advantage of two, 250-sheet paper-input bins and an output bin that hold up to 250 sheets. Once users complete a document, they can select the appropriate paper bin directly from the Samna program, or manually from the printer's front panel. The new software printer driver also features automatic envelope feed for special applications that require printing information directly on an envelope.

Samna can automatically alternate the stacking of print jobs in the output tray, making it easy to identify different documents.

Samna also supports

* HP's new "soft fonts," including proportional printing in Times Roman and Helvetica
* Headline size type up to 24 points
* HP's new proportional Greek/math cartridge
* HP's new Presentations cartridge, a special oversized type style that users can print on paper, then copy onto transparencies for making professional-quality visual aids.

Samna Word III is a full-function word processing package that includes basic word processing features, and advanced features such as support for IBM's DCA (Document Content Architecture) revisable-form text that DISSOS accepts, DIF (Data Interchange Format) file translation support, spelling error detection and correction, automatic table of contents and index generation, line drawing, section numbering, floating footnotes, glossary, mail merge and more.

Samna+ is a single, unified program that combines word processing capability, an integrated spreadsheet, and a WordBase Manager for quickly locating any word phrase, or combinations of them throughout all files on a disk. It contains all the features of Samna Word III, as well as "seamless integration" of numbers and text within a document, floating cells, ability to print to multiple printers, and more.

Samna's special upgraded printer disk is available immediately from Samna at no charge.

For more information, please contact Samna Corporation, 2700 Northeast Expressway, Atlanta, GA 30345, (404) 321-5006.

Mention that you read about it in *Computer Shopper*. ●

Expanding H/Z

continued from page 160

generator, DMA channels, and other neat stuff. The large number of pins (84) suggests that the V-25 will also have a lot of I/O lines built-in. The V-25 lacks the 8080 8-bit emulation mode of the other V chips. In it's place, it includes several expanded controller-oriented instructions, in addition to the usual 16 bit instruction set.

The V-25 may find smooth sailing into a new market when it arrives. No one else is currently producing an 8086-compatible single chipper microcontroller. It makes it possible to use inexpensive PC clones for development work. You can also use all the resources of MS-DOS machines, including debuggers, tracers, and circuit emulators. This ought to be another neat little chip from NEC, when and if it shows.

Why Not More Heath/Zenith Coverage?

Many H/Z-89/90, H/Z-100/120, (and even H-8) owners who read the *Computer Shopper* may feel somewhat "left out" of this PC-compatible oriented column, and I can understand that. Right now, we just don't have the time or resources to cover those other H/Z machines adequately. The direction of this column (for the near future, at least) is going to continue to be directed toward the H/Z-PC line.

If you are really interested in seeing material specifically for the other H/Z machines, you should write to our editor, Stan Veit. We would need some good reviews and articles for these machines. If you write to Stan and let him know, he is always open to the needs and interests of our readers. I know he will give your comments and letters fair consideration.

Coming In Future Columns

Be sure and check in for more information on H/Z-PC CPU speed-ups. We'll also be looking at a revolutionary new Z-80 co-processor board that may interest a lot of H/Z-89/90 users. The Little Thunder board, from Decmation, which adds a 5Mhz Z-80 co-processor and CP/M to your H/Z-PC for under $200! If you can't wait for the review, then contact: Decmation, 2065 Martin Ave. Suite 110, Santa Clara, CA 95050; (408) 980-1678. ●

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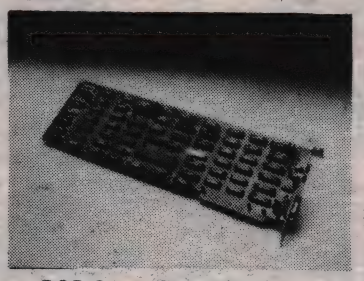

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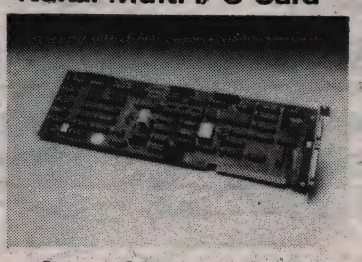

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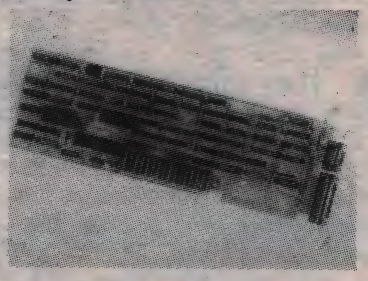

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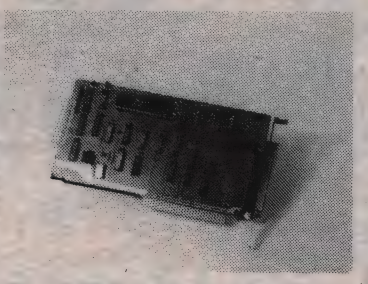
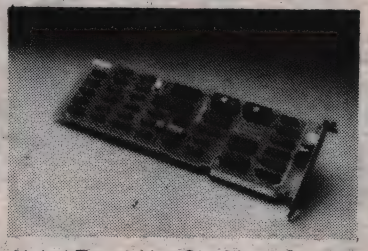


- Controls 4 Disk Drives
- (2 internal and 2 external) 4 Layer PC Board

Price : $ 49

Nakai Trans-Net Card



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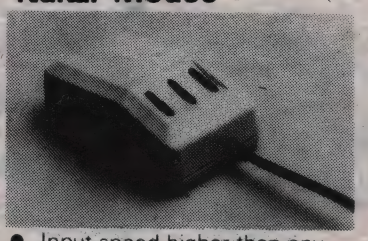

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Medical Resources continued from page 90

MEDICAL PRACTICE MANAGER

PACIFIC MEDSOFT, INC.

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OR-D PHYSIOTHERAPY SYSTEM

OR-D SYSTEMS

Complete office management system of the physiotherapy office which does per visit billing, diagnosis, treatments and more. Additional features include: perscriptions, daily income, aging and provider reports, various insurance forms, insurance monitoring by patient, complete accounts payable system, state of the art recall systm, marketing, letter writing and automatic back-up. Networking is also available.

OR-D OPTOMETRIC SYSTEM

OR-D SYSTEMS

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OR-D MEDICAL MANAGEMENT SYSTEM VER-1.1.A

OR-D SYSTEMS

Complete office management system for a medical practice which does per visit billing, diagnosis, treatment and prescription. Features include: Per Visit Invoice and Reminder Notices, Form Generation for Scheduled Patients, Income Reports, Daily Production, Insurance Claim Form Generation, Patient Reports, Billing and Statement Processing, Aging Reports, Complete Recall System, Provider Income Analysis, Insurance Monitoring by Patient, Patient History of Transactions, Referral List, Management Statistics Reports, Marketing, Account Payable System and Word Processing.

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INTERNIST +

N-SQUARED COMPUTING

THE INTERNIST + is a differential diagnostics package. THE INTERNIST + has all the features of the Interist ver-4.0 plus an expanded data base of over a thousand symptoms with full editing capabilities for almost unlimited custom expansion.

INTERNIST VER-4.0

N-SQUARED COMPUTING

The INTERNIST performs differential diagnoses on any combination of over 480 symptoms for 330 diseases, based on the Merck Manual. The INTERNIST is written for members of the medical/health professions interested in performing differential diagnoses with the aid of a personal computer. This program offers several diagnostic options: Exclusive Analysis -screens and displays only those disorders which exhibit all of the selected symptoms, using an algorithm that screens on the order of symptom selection, Pooled Analysis -displays the entire differential list of diseases with any combination of the selected symptoms with these results ranked in order of greatest number of shared symptoms, and Disease Reference -displays all symptoms associated with any disease in the data base. This product may not be supported on all IBM PC compatibles.

NUTRITIONIST II

N-SQUARED COMPUTING

NUTRITIONIST II is an interactive program with which one can analyze single foods, food combinations, meals or specialty diets. In addition to the capabilities presented in NUTRITIONIST I, NUTRITIONIST II provides both the graphic and tabular analysis of 12 additional nutrients. This program also includes automatic calculations of the Nutritive Index, on-screen index of food items, an exercise program, up-to-date cost information and automatic determination of food exchanges and substitutes.

NUTRITIONIST I

N-SQUARED COMPUTING

An interactive diet analysis program that analyzes single foods, meals, recipes and complete diets. A nutrient analysis program that graphically displays analysis of foods, recipes, meals, menus, and diets in weight and percent of RDA for 19 nutrients. Identifies deficiencies, excesses, and their sources and determines optimum foods for balancing diets. Creates food lists for

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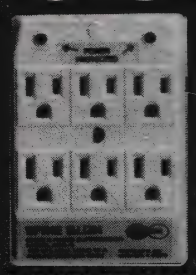

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Medical Resources continued from page 197

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Medical Resources continued from page 198

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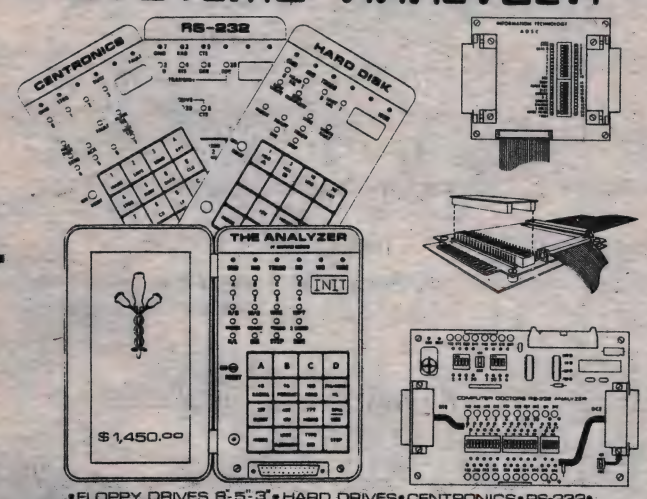

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Medical Resources continued from page 200

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Medical Resources continued from page 201

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WHY SMOKE

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Other Vendors: Wellsource

Designed to help a person understand what he gets out of smoking. Derives six subscales: stimulation, tension reduction, and more. Using an inventory of eighteen questions developed by the Public Health Service and the National Institute of Health. Also includes: handling, pleasurable relaxation, psychological addiction and habit.

STRESS PROFILE

MEDICAL SOFTWARE CONSORTIUM

Other Vendors: Wellsource

A profile of how a person is coping with stress rather than a measure of the stress in one's life. By using the National Center for Health Statistics General Well-Being Schedule, the printout reflects how the person perceives his present mental well-being and coping ability.

SMOKER'S PROFILE

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Other Vendors: Wellsource

Predicts the consequences on one's health as a result of smoking. Uses data from the U.S. Surgeon General's report on smoking. It shows expected decrease in life expectancy based on current smoking habits, increased mortality risk, increased risk for various diseases and statistics showing increase in days lost from work and in sickness days.

SKINFOLD BODY COMPOSITION

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Other Vendors: Wellsource

Based on Dr. Kenneth Cooper's research and determines percent body fat using a simple skinfold calipers measurements. In men, testing includes chest, abdomen and thigh. In women it uses triceps, waist and thigh. The final report calculates percent body fat, absolute weight of fat, lean body weight, ideal weight and desired body fat.

RISKO

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Other Vendors: Wellsource

A simplified coronary risk profile that consists of questions on hereditary influences, smoking, physical activity and more. Also includes: dietary cholesterol, fat intake and stress. It also includes blood pressure and height/weight measurements.

RADIOGRAPHY CONSULTANT

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PDB/MD

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Other Vendors: Squared Computing

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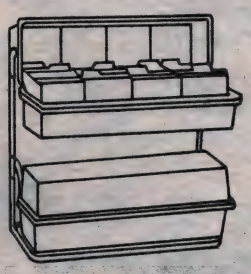

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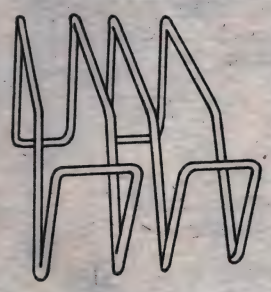

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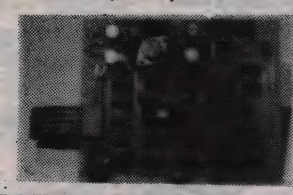

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Medical Resources continued from page 202

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Other Vendors: Wellsource

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LUNG FUNCTION

MEDICAL SOFTWARE CONSORTIUM

Other Vendors: Wellsource

Summarizes actual, predicted and percent of predicted vital capacity and timed volumes (FEV 1.0, FEV 1.0/FVC, and FEV 25-75). Requires manual input of the spirometry values.

LIFE (LIFESTYLE INVENTORY AND FITNESS EVALUATION)

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Other Vendors: Wellsource

A comprehensive health screening that includes profiles on overall "wellness," stress, nutrition and fitness. It also includes health, risks and health hazards. Historical data is taken with a 12-page health and lifestyle inventory, physical data includes height, weight, skinfold body measurements, pulse, blood pressure, optional lung function tests and ECG, and serum cholesterol, HDL, triglycerides, and glucose. Also has full editing and updating of records in the data file. There is a corporate report module for statistical summaries and group profile to be developed for $550.00.

HEART CHECK

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Other Vendors: Wellsource

Takes a lifestyle inventory consisting of physical activity, stress, personal and family medical history and more. A comprehensive coronary risk profile with recommendations for risk reduction. Based on the Farmingham Study. One also uses data from blood serum HDL, cholesterol, triglycerides and glucose, height and weight, resting pulse and blood pressure. Lung function tests (vital capacity and FEV 1.0) and EKG are optional. The printout gives a personal coronary risk profile, the probability of developing coronary heart disease within eight years and a personalized listing of specific recommendations for risk reductions.

HYDROSTATIC BODY COMPOSITION

MEDICAL SOFTWARE CONSORTIUM

Other Vendors: Wellsource

Determines percent body fat, body density, ideal weight and desired body fat through use of underwater weighing. The techniques involved can be found in "Nutrition, Weight Control and Exercise" by Frank Katch and William D. McArdle.

HEALTHSTYLE

MEDICAL SOFTWARE CONSORTIUM

Other Vendors: Wellsource

A general health and safety habits survey with recommendations on how to prolong life and health through lifestyle changes. The survey includes questions on cigarette smoking, drinking, diet, exercise, stress and accident prevention.

HEALTH AGE AND LONGEVITY APPRAISAL

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Other Vendors: Wellsource

An assessment and motivational tool for use in health care and health promotion. This program is based on an on-going study in Almeda County, California of 7000 people in which basic health habits were observed. The program predicts ones longevity based on ones health habits and lifestyle. It considers smoking status, alcohol intake, physical activity, sleep habits, weight and eating habits to determine ones physiologic age and expected lifespan-- an excellent tool for making one aware of the effects of various health habits on health and longevity.

FITNESS PROFILE

MEDICAL SOFTWARE CONSORTIUM

Other Vendors: Wellsource

Provides a comprehensive fitness evaluation with a personal exercise prescription. Taking data from the National Academy of Sports Medicine and Dr. Kenneth Cooper's Aerobic Research Center. The system evaluates one's present regimen for weekly caloric expenditure, body composition, musculoskeletal fitness, pulmonary function analysis and cardiovascular fitness. Fitness tests include: skinfold

continued on page 206

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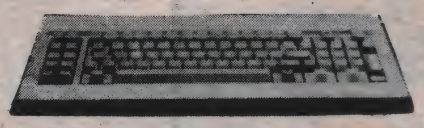

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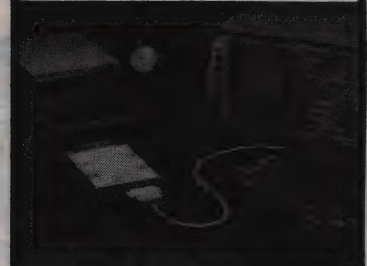

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Medical Resources continued from page 204

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FITLOG

MEDICAL SOFTWARE CONSORTIUM

Other Vendors: Wellsource

FITLOG is an assessment and motivational tool for use in health care and health promotion. This program allows the individual to maintain a monthly log of his/her exercises and provides a summary of the calories expended for a list of over 70 different exercises. The log requires the user to document date, type of exercise, duration and distance covered throughout the month.

DRUG MASTER

MEDICAL SOFTWARE CONSORTIUM

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BLOOD GAS CONSULTANT (MSC)

MEDICAL SOFTWARE CONSORTIUM

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MFMS, designed for the single specialty physician, solo or groups, automates the billing and collection process for the physician. Some of the key features of this system are: Letter Writer -up to 999 letters can be maintained on file and sent to individual patients, groups of patients or insurance companies, Flexible Accounts Receivable Aging -user can define aging period for custom reporting and analysis, A/R by Physician -accounts receivable can be analyzed by individual physician, Multiple Languages -billing and patient statements in English and Spanish can be printed and Multi-Client -user can bill for other offices and other unaffiliated physician practices with complete security and segregation of the client files.

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continued on page 208

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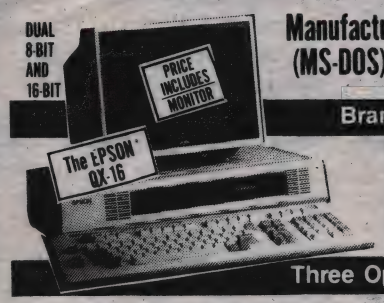

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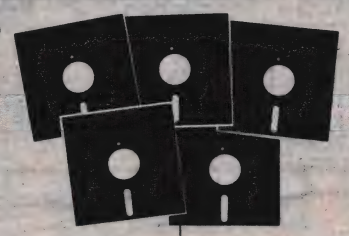

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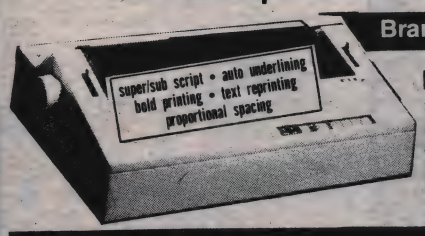

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Medical Resources continued from page 206

and in the future. Professional Income Planner - which gives you estimates of your net income from practice for this year and any later year. Retirement Savings Solver, a deceptively simple pair of worksheets that calculate the savings you need to reach your retirement goals and predict the old-age income to expect if you pursue your current savings plan. Income Tax Trimmer - which you'll find helpful in figuring your capital gains picture and estimating your total tax. (Based on 1984 regulations, this set of worksheets will be updated as needed). Net Worth Work-Up - a package of worksheets that totals your holdings, calculates amortization of your loans and forecasts your personal bottom line. Yearly Income Allocator, which quickly surveys your current cash flow and determines whether you can realistically meet your long-term financial objectives. The worksheets include complete, on-screen instructions for use and take full advantage of your computers function keys. There are no codes or commands to learn and the only time you need refer to the 45 page manual that's included with the program is when you start it up. The LABORATORY is not an office management system. It's designed solely for your personal use as an advanced financial planning tool. Figures you enter on the Lab's worksheets are automatically stored for you on the program diskette itself. No interface with other applications software is required.

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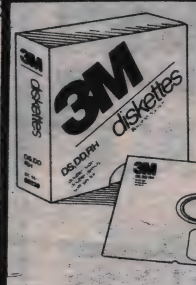

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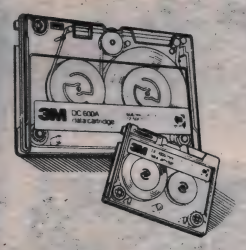

MDS #	Price
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DC 300A	15.95
DC 300XL	18.95
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DC 600A	21.25
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DC 600HC	23.75
DC 615A	15.75
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DC 2000	16.95

$3.00/5 Cartridges Shipping and Handling

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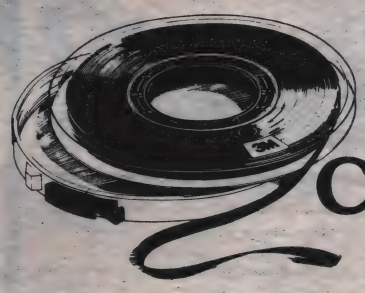

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Medical Resources continued from page 208

surance, Charge and Payment data can be entered and inquired upon from all terminals in any combinations. System safeguards exclude simultaneous updating (changing a patients file). This eliminates "lost" data or changes. Printed reports are obtained from the system printer and do not tie-up or limit video terminal usage. Automated Insurance claims transmission would require modem and hardware interface.

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TRIPREC: TRIPLET RECALL

LIFE SCIENCE ASSOCIATES

This program deals with cognitive deficits in strokes and other brain injuries. This program is an alternate easier program for short and long term memory retention. Can be used as a yardstick of progress and for mnemonic elaboration practice.

SRWL: SPEED READING OF WORD LISTS

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SPAN: MEMORY SPAN

LIFE SCIENCE ASSOCIATES

This program deals with

continued on next page

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DB-25F Female	$0.380
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Thanks & God Bless,
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Medical Resources continued from page 209

cognitive deficits in strokes and other brain injuries. It is designed to help restore short-term memory storage capacity.

SEQREC: SEQUENCE RECALL

LIFE SCIENCE ASSOCIATES

This program deals with cognitive deficits in strokes and other brain injuries. It is a non-verbal memory task covering a wide range of deficits. Based on a sequence pictures test, it can be made very easy for patients with severe deficits.

SEARCH: SEARCHING FOR SHAPES

LIFE SCIENCE ASSOCIATES

This program deals with cognitive deficits in strokes and other brain injuries. In SEARCH patient matches shapes in different parts of the visual field. Computer stores search times and errors.

REACT: REACTION TIME MEASURE OF VISUAL FIELD

LIFE SCIENCE ASSOCIATES

This program deals with cognitive deficits in strokes and other brain injuries. In this program the patient presses keys to stop runaway numbers. Detects slow responses to visual stimuli. One of the least difficult tasks.

RANDT MEMORY TEST

LIFE SCIENCE ASSOCIATES

This is a clinical program for memory testing. The test is a combination of paper and pencil items, picture recognition cards and a program for guiding test administration and scoring. Designed for evaluation of mild to moderate memory loss in elderly and neurologically involved populations. Normative data base (300 normals, 80 patients) is included.

LOG: PATIENT LOG

LIFE SCIENCE ASSOCIATES

This is an administrative program for dealing with cognitive deficits in strokes and other brain injuries. This program provides a continuous record of independent patient activity.

FREEREC: FREE RECALL

LIFE SCIENCE ASSOCIATES

This program deals with cognitive deficits in strokes and other brain injuries. This program measures short and long term memory retention.

COMPUTER PROGRAMS FOR COGNITIVE REHABILITATION

LIFE SCIENCE ASSOCIATES

Eight programs and a handbook identify and treat cognitive defects in strokes and brain injuries in this comprehensive program. Memory and perception tasks are included. For professionals, paraprofessionals, or family members under professional guidance.

CALIFORNIA NEUROPSYCHOLOGICAL SYSTEM

LIFE SCIENCE ASSOCIATES

This package contains four programs dealing with neuropsychology. The four programs are: California Verbal Learning Test, which provides a comprehensive assessment of verbal memory, California Global-Local Memory Test which assesses Visuospatial memory, California Proverb Test, evaluates higher level abstraction skills and California Finger-Tapping Test, used in measuring motor dysfunction.

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continued on page 212

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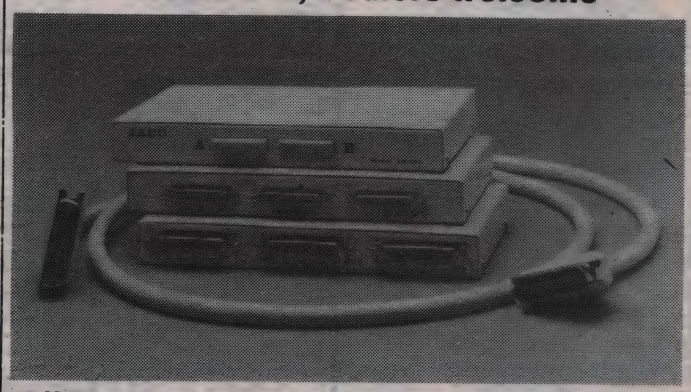

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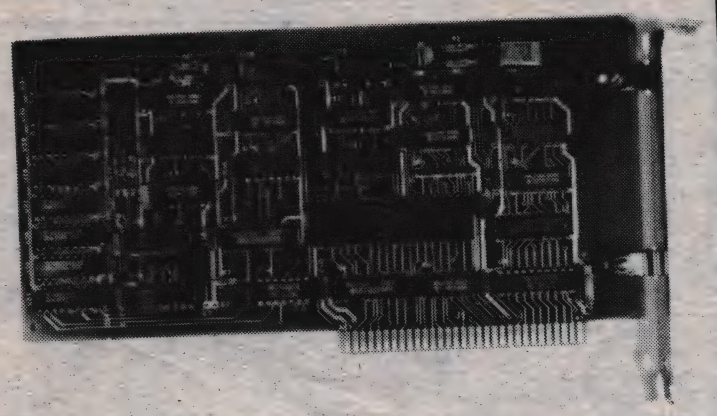

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Medical Resources continued from page 210

MEDICAL OFFICE MANAGEMENT

INTERNATIONAL MICRO SYSTEMS

This complete system will schedule appointments, prepare bills, manage receivables and even fill out insurance forms. This system accommodates a single doctor's office or a small clinic. It uses ICDA and CPT codes to itemize patient statements, maintain a patient history and print insurance forms. Patients can be given a full statement before they leave the office or consolidated statements can be mailed to the head of household. An Office Scheduler tracks appointments and free time for each doctor. The system runs on floppy or hard disk drives.

CLINICAL RESEARCH SYSTEM (CRS-3)

INTERNATIONAL MEDICAL PRODUCTS

This program is for medical device or pharmaceutical manufacturers involved in phase I, II, III or IV multicenter clinical studies. CRS III provides the necessary data collection and data management capabilities for handling large multi-center studies. The CRS III also includes easy to use data entry, data selection, and data analysis using statistics and graphing completely integrated into the system. It utilizes a single menu for function selection providing easy familiarization for the new user while also serving the speed requirements of the more experienced user. It also includes Pie & Bar Charts, Additional Statistics, Cross Tabulations, Additional Data a Transfer Capabilities, Additional data security and integrity functions, Data Audit Trial Capability, Patient and Physician Scheduling and Data Transfer and Update From Remote Sites. This product may not be supported on all IBM PC compatibles.

CLINICAL RESEARCH SYSTEM (CRS-2)

INTERNATIONAL MEDICAL PRODUCTS

For more extensive studies or studies involving multiple sites CRS II provides the necessary capabilities. The CRS II includes easy to use data entry, data selection, and data analysis using statistics and graphing completely integrated into the system. CRS utilizes a single menu for function selection providing easy familiarization for the new user while also serving the speed requirements of the more experienced user. Plus the CRS II features Pie & Bar Charts, Additional Statistics, Cross Tabulations and Additional Data Transfer Capabilities. This product may not be supported on all IBM PC compatibles.

CLINICAL RESEARCH SYSTEM (CRS-1)

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A clinical research system designed for the non-computer oriented individual. CRS-1 provides easy to use data entry, data selection, and data analysis using statistics and graphing completely integrated into the system. Because CRS-1 was specifically designed with physicians, research personnel and health care professionals in mind, it is more effective than trying to fit clinical data into one of the generalized database managers. CRS-1 utilizes a single menu for function selection providing easy familiarization for the new user while also serving the speed requirements of the more experienced user. This product may not be supported on all IBM PC compatibles.

S/23 PHYSICIAN MEDICAL SYS

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INFORMATION ANALYSIS CORP

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HEALTHCARE SOFTWARE SYSTEMS

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continued on next page

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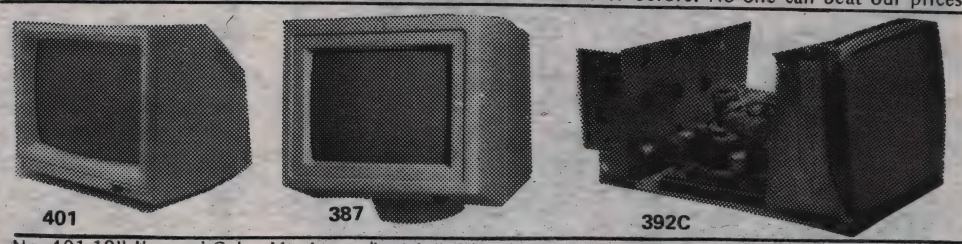

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MISSLES & SPACE INFRA RED HOROLOGY

Medical Resources continued from page 212

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FISHER BUSINESS SYSTEMS INC

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DATUM CONSULTANTS INC

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continued on page 215

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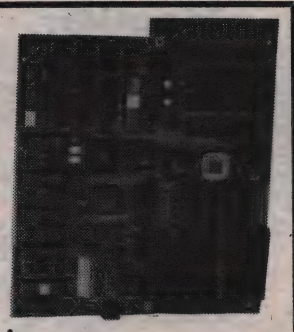

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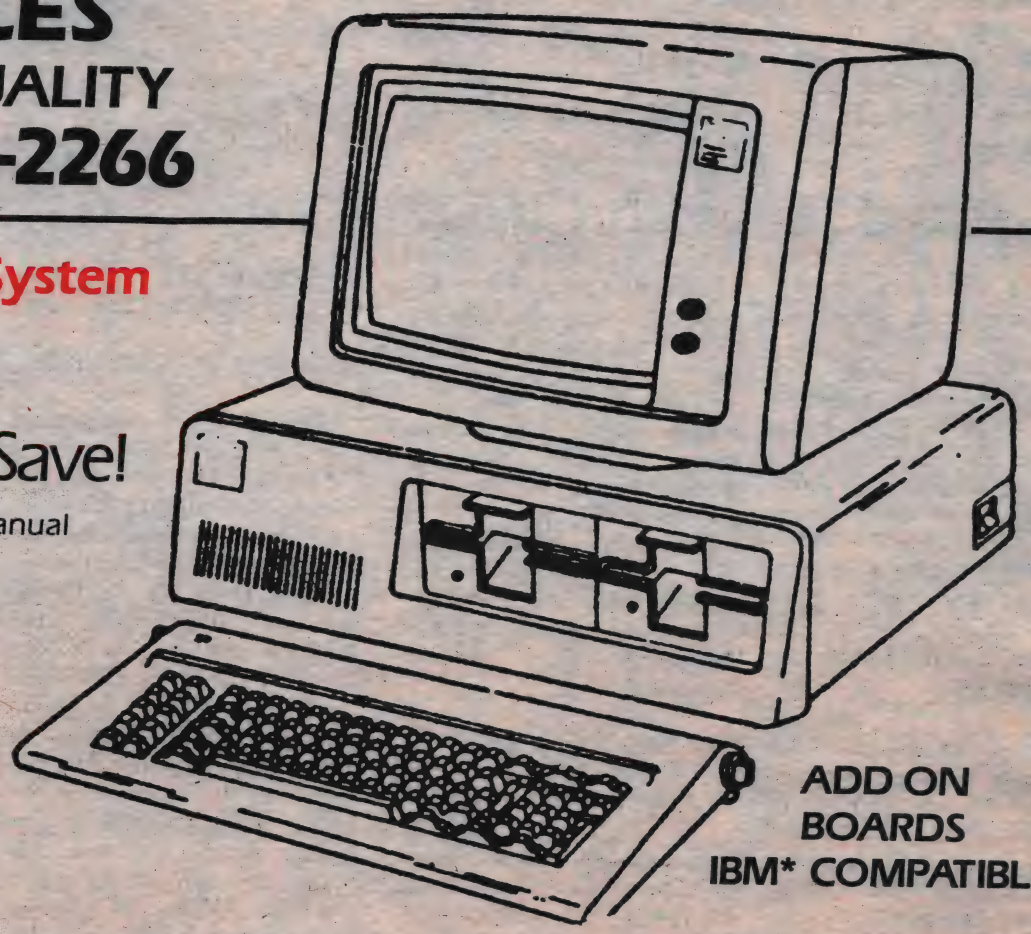

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Medical Resources continued from page 213

into the facility. All service fees and payments are recorded and the appropriate billing statements and insurance claims are printed upon request from the user. This system keeps records on each patient, showing the applicable admission and occurrence dates, and all of the service procedures for each. The function of maintaining the accuracy of the system files is made easy for the user. These file maintenance routines allow for the addition , correction, or deleting of any field in any file in the system. Proper security codes are applied as requested by each user. The system allows information inquiry into the files. This is very helpful when special problems arise and require special data from the files to determine how to solve the current problem. For example, if a patient has forgotten his account number, a special search may be activated which will scan the account file by name and display the records containing the requested name.

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DATA STRATEGIES INC

This program is specifically designed for optometrists and opthamologists. Features included: accounts receivable, insurance and private billing, practice analysis, word processing, data management, recall, deliquent processing and inventory (optional).

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MICROFLEX/MED VER-2.0

DATA LAW CO

This is medical practice management software for the small to medium practice. MICROFLEX/MED offers fast, easy patient data entry with automatic verification of patient account number, printing of AMA claim forms, fully detailed patient statements at months end, tracking of accounts with aging up to 120 days, procedure and diagnostic statistical reports each month with morbidity indexing, patient recall by procedure and password information security to maintain patient confidentiality.

MEDICAL BILLING SYSTEM

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Designed to aid those in the medical profession to store, track and collect accounts receivable. Many features provided by this system include: automatic daily preparation and printing of patient billings, AMA Insurance forms and Welfare forms. Easy tracking of receivable accounting with clear audit trails. Key reports inlcude: Provider Information by Name, Accounts on Hold Report, Aged Accounts Receivable, Transaction File Listing and various file listings.

MEDACCOUNTS

COMPUTER SOFTWARE FOR PROFESS

This system is a medical (physician) office management program. The MEDACCOUNTS system is capable of keeping records of medical office patients, family billing, insurance and welfare billing. Other features include: accounts receivable, revenue and production analysis and patient trailing and recall.

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PSYGER

COMPUMAX ASSOCIATES INC

A psychogeriatrics diagnosis software package, authored by Dr. L. Luka, a renowned specialist in this field. Elderly citizens typically after reaching age 60 often suffer from a variable degree of decrease in their faculties, autonomy of movement, orientation and indendence. The reduction of abilities often takes place after an acute illness or an accident and may lead to a permanent change in their everyday lifestyle. If such an occurrence goes undetected, severe damage may result both to the individual and to society. In view of the increase in the elderly population, it is therefore important that the professional observer should be enabled to measure such decrease in faculties in an objective, technical and speedy fashion. As opposed to lengthy manual practices, the proposed computerized test takes less than 15 minutes. By its graphical screen output, as well as its single-sheet printed output it makes possible for the specialist to obtain a complete diagnosis of the patient's condition. The 16 items analyzed include the factors of autonomy, orientation in space and time, workings of memory both fresh and old, speech, praxis, gnosis, and critical aptitudes. The output presents a frequency diagram that permits the trained specialist to reach practical decisions in a minimum of time. Designed for use by; private general practitioners and medical specialists receiving elderly patients, geriatric hospitals, convalescent hospitals, nursing homes, hospitals receiving patients over 55 years old, all outpatient services, non-medical institutions working the the elderly, schools for elderly students, employers with employees over 55 years of age, agencies involved in aptitude testing and selection, and all researchers working with the elderly.

continued on page 217

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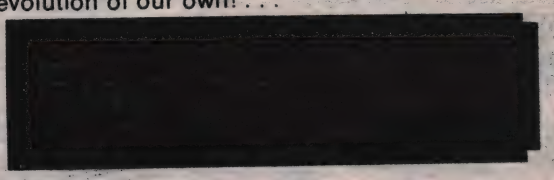

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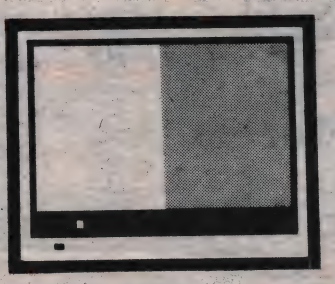

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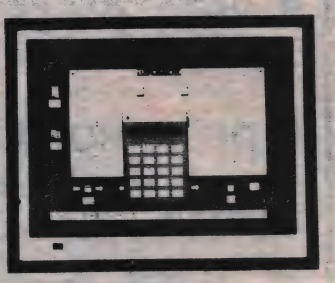

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Medical Resources continued from page 215

COMPUSEX

COMPUMAX ASSOCIATES INC

A sexological diagnosis package authored by Dr. V. Reymond, for specialists in this field. Many people occasionally suffer of a reduction in their sexual potency. Even more people often believe they do so. The reduction of abilities often takes place after an acute illness or an accident and may lead to a permanent change in their everyday lifestyle. If such an occurrence goes undetected, severe damage may result both to the individual and to society. In view of the increase of people so affected it is important that the professional observer should be enabled to measure such decrease in faculties in an objective, technical and speedy fashion. As opposed to lengthy manual practices, the proposed computerized test takes less than 10 minutes. By its graphical screen output, as well as its single-sheet printed output it makes possible for the specialist to obtain a complete diagnosis of the patients condition. The 20 items analyzed include the factors of performance with regular partner, performance with occasional partner, physical, personal and family events. The output presents a horizontal frequency diagram, that permits the trained specialist to reach practical decisions regarding the true status of the patient in a minimum of time. This program is designed for use by private general practitioners and medical specialists handling sexological problems, specialized hospitals, non-medical institutions working in the field of sexological advisement services, sex surrogate workers, schools for sexual training, employers with employee services including the health assistance field, agencies involved in aptitude testing and selection, and all researchers working with the area of sexological research.

MEDI-LOG

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RHEUMATOLOGY DATA—BASE VER-1.0

COGITUM MEDICAL SOFTWARE INC

This program provides a detailed history for rheumatological disease. The history is obtained through screening questions for rheumatological disease and positive responses are then expanded in detail. Useful when screening for possible etiologies of systemic disease as well as specific rheumatological disorders.

PSYCHIATRIC ILLNESS SCREENING PROGRAM VER-2.1

COGITUM MEDICAL SOFTWARE INC

An automated questionnaire which probes for major types of psychiatric disorders. When positive responses occur an in depth history is obtained. The program explores past psychiatric history, depressive symptoms, suicide risk factors, symptoms of mania, psychosis, anxiety and somatoform disorders. It also gets a detailed look at the use of drugs, alcohol, etc. Not to be confused with computerized psychological testing programs. The main purpose is to rapidly gather specific symptoms which would then require physician intervention, referral, etc.

NERVE CONDUCTION AND EMG REPORT WRITER VER-2.1

COGITUM MEDICAL SOFTWARE INC

This program calculates and produces standardized reports. Used by physician or technician performing nerve conduction, F-wave or H-reflex studies. Calculations are displayed as data is entered. The EMG section of the program displays a series of menus from which descriptions can be chosen. Printout displays NCV results and a comparison to your own lab normals is printed. EMG section describes each muscle and its characteristics plus a series of interpretative comments selected from a menu are displayed.

HEADACHE VER-2.1

COGITUM MEDICAL SOFTWARE INC

Produces a detailed history of characteristics of patient headaches and useful positive and negative historical findings. A detailed headache history is obtained through a branching program which pursues headache types in depth and explores time consuming details. Categories include aura, prodrome, headache accompaniments, triggering, exacerbating and alleviating factors, stress factors, depressive and hysteroid factors, previous medications, diet factors, occupational factors, sleep patterns, neuro and medical review of systems. Not intended to take the place of a good neurological examination, but a useful tool in the hands of a busy clinician.

G.I. HISTORY PROGRAM VER-1.1

COGITUM MEDICAL SOFTWARE INC

A guided history which pursues a patient's chief complaint by specific symptoms rather than by presumed diagnosis. An optional section will provide suggestions for specific workup.

KINDERCART VER 1.0

COGITUM MEDICAL SOFTWARE INC

This program features patient history with more attention given to family history, development history, prenatal history, etc. The program obtains pediatric age group information including birth data, detailed developmental milestones, immunizations, etc. Program will also keep an ongoing problem list and developmental record on disc which can be updated with each subsequent checkup, automatically scoring the child according to percentiles for height, weight, etc. A printout for parent can be generated when needed.

GENERAL NEUROLOGY DATABASE VER-1.0

COGITUM MEDICAL SOFTWARE INC

This program, designed for the neurologist as well as others, obtains a general neurological history. It is based strictly on symptom descriptions. The printout groups useful positive and negative findings according to

continued on page 218

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Medical Resources continued from page 217

neurological system, to allow easier localization. The second portion of the program screens for any other abnormalities in a general neurological review of systems.

GENERAL MEDICAL HISTORY VER-1.1

COGITUM MEDICAL SOFTWARE INC

Acquires and prints out medical history. The history includes family history, medications, allergies, previous hospital admissions, social history, habits and a very detailed review of systems with a branching pursuit of specific complaints. The printout can be attached to office or hospital records after being verified by the attending physician.

ELECTRONIC NURSE (PEDIATRIC VERSION) VER-1.0

COGITUM MEDICAL SOFTWARE INC

This package is similar to THE ELECTRONIC NURSE but includes the ability to calculate a drug dose according to present MG/KG doses. The program then matches the dose to the size of the available pills, capsules, etc. If a dose exceeding the preset parameters is chosen, the program will alert the physician. High, low and mid range dose choices are displayed.

ELECTRONIC NURSE (THE) VER-2.1

COGITUM MEDICAL SOFTWARE INC

This program stores up to 300 medication combinations, prints prescription forms, orders drug levels, blood counts, etc. THE ELECTRONIC NURSE also updates charts and makes flow charts. Lab tests and nurses notes are also stored and can be recalled quickly. Data coming back from the lab is entered as a direct entry or as a flow chart. Using a "tickler file" patients can be recalled at will to review or followup. Detailed instructions are given to the patient along with prescriptions, giving information and a summary of their medication list. An identical copy is kept on the chart.

EKG REPORT WRITER VER-1.1

COGITUM MEDICAL SOFTWARE INC

This program produces a

continued on page 222

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The Silver Box continued from page 76

S-100 computers do, diagnosing the Disk Controller and the Drives would be an easy job.

I had long been planning to write a monitor program for the Sanyo and put it in the large empty area of the ROM. Is anybody interested to make a little money on it? The program should include primitive disk read and write commands, besides memory dump, trace, and other functions provided by the DEBUG but independent of the Sanyo BIOS. I would like to write this program and sell it in the form of a replacement ROM, only if, I had time to do it. Unfortunately, I have several business projects going and I have to perform. The urgent requirements and things do not allow me to have the joy of creating it. At the moment, I cannot allocate any other time besides writing this column.

The Disk Drives seem to work fine, but the Disk Controller or the ROM is not working. I know this because the CPU should be testing the Disk Controller status with 01H to see if the software reset command which was issued previous to entering this testing loop has been carried out. If the Controller is still in the process of the resetting internal registers, the bit 0 should be high. This bit is the busy status indicator. The machine codes for testing bit 0 is A8H, 01H, but I did not see any 01H appearing on the DATA BUS anywhere within the loop CPU was running endlessly. The next step is to pull out the ROM and test it in order to eliminate it from the possible cause of the problem.

I will report to you in the next column to tell you what happened to my Silver Box after this, and, this is the reason why the evaluation of the Speed Board has met a temporary suspension.

The V20 And The Speed Board

There is a question of the CPU speed from the Jack Farrow's Speed Board and which Main Board you have in your computer. With my Silver Box, it hangs if I use the Speed Board with either the Missing Link or the "Modified" VB512. It runs fine if I did not use the Color Board, the "Modified" VB512, at both high or low speeds. Both Bill Soltau, the owner of the Tampa Bay Digital, and Jack Farrow, the designer of the Speed Board, told me to try the V20-8. I ordered some and I am waiting for the shipment to arrive at my door.

As for the V20, I am planning to dedicate one whole article on the NEC V series with a patching program which compensates for the shortened wait timing. The Sanyo BIOS uses four to five RAM instructions for timing, each of which takes 83 clock cycles with 8088, while the V20 takes only 15 clocks to complete the same operation with its dual 16 bit internal bus, a speed increase of 83/15 = 5.23! No wonder the V20 has difficulty in running programs which include software timing as in disk operations!

Apart from the technical side of the NEC V series, I had a conversation with Bob Hinkly of NEC Electronics on Intel-NEC litigation. This is a very interesting case. Intel is suing NEC for copyright infringement and, according to Bob Hinkly, NEC has Intel license to make 8088/8086 since 1983! More stories on NEC V series (V for victory?) including V40 and V50 will appear in the future Sanyo column. ●

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Fig. 1 - A typical AppleWriter text file.

```
% puss.at.bat (Postscript)
% .....
initgraphics

1 setlinecap
1 setlinejoin

/tension 2.8 def

/ctf {curvetrace gsave 0.95 setgray fill grestore
2 setlinewidth 0 setgray stroke}def

/ctfd {curvetrace gsave 0.4 setgray fill grestore
2 setlinewidth 0 setgray stroke}def

/ct {curvetrace stroke} def

/showtick false def

% tail

[310 262 -10  360 330 100  308 368 -170
308 368 45  330 380 0 392 285 -100 340 210 -160]
curvetrace

gsave clip newpath
[340 200 25  390 290 90  350 350 170 300 260 0
340 200 -70 ] curvetrace gsave 0.95 setgray fill
grestore 0.5 setlinewidth stroke 2 setlinewidth
grestore 2 setlinewidth  stroke

% left foot

[322 111 -110  330 75 -45  385 53 0 406 65 90
368 90 185] ct [406 65 -45  424 75 90
400 98 165] ct [424 72 -25  440 85 90  420 110 150
380 115 170  360 122 135] ct

% right leg

[216 130 25  298 175 25
298 175 -160  223 166 150  186 208 120
186 208 -115  168 145 -90  196 107 -30
230 97 0 250 113 90  233 139 125] ctf

% right foot

[180 87 -160  160 60 -90  185 46 0  200 50 40
248 82 40 256 100 100  250 112 120 ] ct
[164 51 -160  142 60 90  163 93 30] ct
[141 60 180  130 75 90 160 104 0 197 106 10] ct

% left bod

[270 213 -90  310 140 -60
326 110 -15  365 120 70  330 250 135  250 325 135
200 310 -80  220 245 -60 272 197 -10] ctf

% upper bat

[60 480 -30  90 480 78  130 700 78  109 725 170
73 700 -93  60 480 -93] ctfd
[85 696 -25  121 695 35] ct

% lower bat

[40 348 90  60 360 0  80 345 -90  65 334 180
40 348 90] ctfd [50 350 -40  72 348 40
72 348 80 78 377 80 50 387 -90  50 350 -90] ctfd

% right arm

[140 487 0 199 435 -70  173 410 120  140 445
180 100 430 -150 108 465 55  140 487 0] ctf

% right fingers

[56 482 -170  50 448 -45 65 442 0  83 461 85] ct
[47 453 -120  50 430 -40 65 428 0 84 450 105] ct

[61 497 -80  70 482 -45 84 470 -90  62 459 150
54 474 115  61 497 35] curvetrace
gsave 1 setgray fill grestore stroke

[95 436 30  112 465 90  92 492 180  77 465 -90
83 450 0 98 467 80] curvetrace gsave 1 setgray
fill grestore stroke

% left fingers

[80 386 -150  50 388 135  40 406 60] curvetrace
gsave 1 setgray fill grestore stroke

[46 402 135  38 424 45] ct
[44 443 -150  44 418 -40] ct
[96 400 80  90 415 150] ct

[95 412 40  98 430 110  82 438 170] curvetrace
gsave 1 setgray  fill grestore stroke


% right bod

[186 208 120  140 340 90  172 408 25
188 412 20  188 412 75  195 435 75 ] curvetrace

gsave

240 440 rlineto clip newpath

[176 210 105  158 330 85  172 390 60  195 405 85
210 440 85 100 400 0  100 200 0] curvetrace gsave
0.95 setgray fill grestore 0.5 setlinewidth stroke

grestore stroke

% left arm

[74 383 -70  120 320 -40  220 300 0  255 330 80
255 370 100 235 390 180  200 350 -110  200 350 170
145 351 170  145 351 135  95 400 125  95 400 180
74 383 -110] ctf

% left ear

[270 530 40  340 560 20
340 560 -55  312 490 -120] curvetrace
gsave 0.4 setgray fill grestore stroke

[300 520 45  338 553 30
338 553 -70  312 504 -130] curvetrace gsave 1 setgray
fill grestore 0.5 setlinewidth stroke 2 setlinewidth

% head

[156 508 -80  228 406 -30  274 390 10  306 401 40
306 401 0  335 432 80
```

continued on next page

Ask The Guru
continued from page 166

characters with Applewriter on an Apple IIe.

Also as you can clearly see, there is no screen-oriented graphics program available for any personal computer anywhere at any price that comes even remotely near thinking about holding a candle to Applewriter IIe image quality.

Er, that's what I hope you will see. We're giving the *Computer Shopper* printing press one last shot at showing decent grays. I've even "opened" the halftones up bunches just for this press. If what you see is less than totally mind blowing, write or call for a free original copy, suitable for framing.

Unlike the dots you might see here, the original has grays so good they look like an india ink wash. You'll have to see this to believe it.

Oh, yes. You do need a digitizer. A safety pin makes a very good one, but if you can't afford such horrendous expense, just use a needle instead.

Although little known as a computer peripheral, a safety pin digitizer easily outperforms just about any other personal computing input digitizing device.

Here is how you use your safety pin digitizer: First, make your original as big as possible, using an enlarging copy machine. Note that you can easily scale, rotate, reposition, stretch, or distort your final Postscript file any which way but loose.

Next, overprint a gray grid onto the big image, using the gray grid routines in my utilities. Then punch a hole at each end of each line, and at each tangent point, or any other point where you want total control. Very few points are needed, and, in general, the *fewer* the better.

Then, tape the artwork onto a light box or a window, and punch the magic numbers into your Apple IIe, entering an X, Y, and direction for each point.

The Postscript Listing is shown under Fig. 1.

Thanks to my newly revised curve tracing routines, an astonishingly low number of points is needed to do this stunning graphics quality. For instance, only four points are needed for a circle, ellipse, or oval.

Reviewing, the curvetrace routine works by inputing an X location, a Y location, and a slope for the ends and tangents of each curved path desired.

Those numbers are then converted into a form that is

continued on next page

Postscript Listing for Fig 1 continued from page 220

```
335 432 95  325 447 125
325 447 70  320 508 120  238 540 -160  170 500 -160
170 500 145  156 508 145] curvetrace gsave

gsave 0.95 setgray fill grestore
clip newpath

[210 418 140  196 455 80  235 480 -40  254 437 -60
 270 422 -20 298 430 -80 318 430 60  326 433 -50
318 404 -150 260 370 180] curvetrace
gsave 1 setgray fill grestore 0.5 setlinewidth stroke
grestore  stroke

% mouth

[213 448 25  240 445 -35] ct
[226 450 -75  275 400 0 300 411 35] ct
[300 411 -155  308 402 0] ct


% right ear

[223 501 150 262 580 30
262 580 -60  275 518 -85] curvetrace
gsave 0.40 setgray fill grestore stroke

[232 502 85  262 570 50  262 570 -70  270 520 -90
270 520 -135  232 502 180] curvetrace gsave 1 setgray
fill grestore 0.5 setlinewidth stroke 2 setlinewidth

% nose

/tension 3.8 def
[300 428 60  315 425 -90  302 413 180  300 428 60]
curvetrace 0 setgray fill /tension 2.8 def

% right eye

[255 482 -45  295 450 -15
295 450 -120  272 442 160  262 474 80] curvetrace
gsave 1 setgray  fill grestore stroke

% left eye

[310 450 60  329 470 60
329 470 -95  321 450 -150 310 450 150] curvetrace
gsave 1 setgray fill grestore stroke

[318 454 70  329 462 30
329 462 -100  326 453 -90
326 453 -170  318 454 150] curvetrace fill

% eyebrows

0.3 setgray [264 498 20  280 488 -60 296 471 20
296 471 -160  280 473 150 264 498 155] curvetrace fill

[312 468 60  327 492 75
327 492 -70  328 482 -90
328 482 -120  312 468 -160] curvetrace fill

0 setgray

% right eyeball

[277 445 100  280 458 70
280 458 -30  291 450 -20
291 450 -155  279 445 -160] curvetrace fill

% whiskers

[210 392 30  282 412 0] curvetrace 1 setlinewidth
stroke [205 404 20  286 416 -5] curvetrace stroke

[318 416 -10  388 416 0] curvetrace stroke
[322 422 15  385 431 10] curvetrace stroke
[325 427 25  383 442 20] curvetrace stroke

% neck fill

2 setlinewidth  236 391 moveto  241 398 lineto stroke

showpage
```

Fig. 2 - Text listing for Figure one.

useful by the cubic spline routines inside the Laserwriter. The paths can then be stroked, filled, or even used as a clipping window for future paths.

Curve tracing speed is normally quite fast, but since I intentionally used several irregular clipping masks on this particular character, this particular image does take over a minute to print.

If you want to see the location and direction of each point, just change */showtick* from false to true. This is a powerful debugging tool.

You will also need a listing of my curve tracing routine. You can get one ready to go on my *Applewriter/Laserwriter Utilities,* or else I will send you a free listing of this super dooper routine, along with a figure one original, when you call or write. ●

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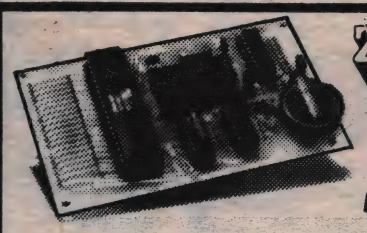

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Medical Resources continued from page 218

complete EKG report in narrative and grammatically correct sentences. Also produces a standardized report with room for the individual physician's favorite phrases and terms, which are put into the program when it is first set up.

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This package explores the medical, psychological and sociological profile of the patient with memory disorder, confusion or dementia. Intended for the generalist as well as the specialist who deals with the elderly population. A medical and neurological profile is developed which outlines possible etiologies for the disorder. A psychological profile helps the physician understand what impact the dementia is having on the entire family. May also be used as a screening tool in geriatric centers.

BACK PROGRAM (THE) VER-1.1

COGITUM MEDICAL SOFTWARE INC

This is a self-contained program which specifically explores the multiple factors involved in the workup of low back pain. A detailed neurological history as well as a medical and neurological review of systems as the relate to back pain are obtained with psychological factors as well. The printout can serve as part of the patient's main record, after physician verification.

BACK, NECK AND ARM VER-1.1

COGITUM MEDICAL SOFTWARE INC

This program obtains history dealing specifically with symptoms of back, neck, hand and arm pain. It can serve as a screening tool in industrial settings by primary care physicians and can be used to take a history on a patient referred for EMG studies. Special emphasis is placed on the diagnosis of back pain, radicular problems in cervical or lumbar area, carpal tunnel syndrome, etc.

MEDICAL OFFICE MANAGEMENT WPCH

CMA MICRO COMPUTER DIVISION

The WPCH is a complete medical office administrative package for solo practitioners or small group practices. This system includes three major elements: appointment scheduling and patient record keeping, private patient accounts receivable and insurance company claim forms preparation. Other features include: 99,000 patients, 19,000 appointments, appointment reminder, private A/R aged, error capture, RSV codes, rolodex labels, 2,500 procedures, 7,750 transactions, instant statement, balance query, edit/adjust system, ICDA codes, source available, modifiable, comprehensive manual, 1 to 10 providers, daily journal, menu driven, technical support, hotline service and upgradable.

MEDICAL OFFICE MANAGEMENT WPC

CMA MICRO COMPUTER DIVISION

The WPC is a complete medical office administrative package for solo practitioners or small group practices. This system includes three major elements: appointment scheduling and patient record keeping, private patient accounts receivable and insurance company claim forms preparation. Other features include: 99,000 patients, 19,000 appointments, AMA claim form, collection report, private A/R aged, error capture, RVS codes, productivity report, 2,500 procedures, 7,750 transactions, instant statement, file labels, balance query, edit/adjust system, ICDA codes, modifiable, 1 to 10 providers, private bills, appointment calendar, daily journal, menu driven, variable period bill, technical support, hotline service and upgradable with a technical newsletter. The third party claim form preparation element allows for the custom creation of procedure descriptions, the use of RVS, ICDA or other locally required third party codes and the preparation of AMA approved universal claim form.

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MEDICARD is designed to manage billing and claim form preparation for small medical offices. According to the developer, the new application is particularly well suited to such specialties as the psychiatrist, psychologist or anesthesiologist. The system allows the rapid development of data for billing small patient bases. The system features a complete monthly billing system and an instant preparation of standard AMA universal claim forms. Patient records can immediately be examined for up-to-the-moment balances. The system operates totally within the Locally Integrated Software Architecture (LISA) provided by the machine. Users can operate MEDICARD like they would any other LISA application using the mouse, pull down windows and screen icons. It operates as a "stationery pad" for complete medical billing. Preview manuals are available for $50.00. Other features include: 1-100 patients/mo., AMA claim form, RVS codes, user procedures, interim statement, ICDA codes, comprehensive manual, balance query, hotline service, upgradable and there is also a technical newsletter.

MEDICAL OFFICE MANAGEMENT PCHE

CMA MICRO COMPUTER DIVISION

The PCHE program is a complete medical office administrative package for specialized practitioners or medium size practices. The system includes four major elements: appointment scheduling and patient record keeping, private patient accounts receivable, medical diagnostic records management and insurance company claim forms preparation. Other features include: 99,000 patients, 22,000 appointments, AMA claim form, appointment reminder, private A/R aged, referral letters, RVS/ICDA codes, rolodex labels, medical histories, 1,750 procedures, 12,000 transactions, file labels, balance query, edit/adjust system, mailing lists, superbill, financial histories, 1 to 10 providers, appointment calendar, daily journal, menu driven, variable period bill, technical support, hotline service, word processing and a technical newsletter. Is a complete medical office administrative package for specialized practitioners or medium sized group practices. The appointment scheduling and patient record keeping element allows for the creation of permanent and temporary patient record files, the scheduling of patient appointments and the preparation of daily appointment schedules. The private patient accounts receivable element allows for the custom creation of professional fee schedules, the input of payments and charges, the daily reporting of billing activity and the preparation of private patient bills. The third party claim form preparation element allows for the custom creation of procedure descriptions, the use of RVS, ICDA or other locally required third party codes, the preparation of extended diagnostic reports, and the preparation of the AMA approved universal claim form. The medical diagnostics records management element allows for the time of service recording of extended diagnostic reporting, the preparation of magnetic chart records and the preparation of medical record letters and other word processing type activity. The program for use on an IBM PC with floppy disk drives is a special version.

MEDICAL OFFICE MANAGEMENT PCH

CMA MICRO COMPUTER DIVISION

MEDICAL OFFICE MANAGEMENT PCH is capable of handling 18,000 patients per 5 MB hard disk. In addition to the billing element, the claim form preparation element and the appointment management element, the program contains a fast and easy customized backup program to help protect your valuable data. This system can also be operated in conjunction with any other applications you may currently be using on your hard disk system. Other functions include: 99,000 patients, 19,000 appointments, private A/R aged, error capture, rolodex labels, 2,500 procedures, 7,750 transactions, balance query, ICDA codes, modifiable, comprehensive manual, 1 to 10 providers, appointment calendar, menu driven, technical support, hotline service and you can upgrade it. Is a complete medical office administrative package for solo practitioners or small group practices. The appointment scheduling and patient record keeping element allows for the creation of permanent and temporary patient record files, the scheduling of patient appointments and the preparation of daily appointment schedules. The private patient accounts receivable element allows for the custom creation of professional fee schedules, the input of payments and charges, the daily reporting of billing activity and the preparation of private patient bills. The third party claim form preparation element allows for the custom creation of procedure descriptions, the use of RVS, ICDA or other locally required third party codes and the preparation of the AMA approved universal claim form.

MEDICAL OFFICE MANAGEMENT SYSTEM PC

CMA MICRO COMPUTER DIVISION

MEDICAL OFFICE MANAGEMENT SYSTEM PC does accounts receivable, claim form preparation and appointment scheduling for up to ten doctors. The system is designed to meet the operating requirements of the general practitioner as well as the specialist. IT has such advanced features as patient recall management, important for the eye specialties or other focused practices such as the heart and cancer specialties. The private billing element allows for the time of service billing of patients on either a cash only basis or a partial payment basis. Extended billing includes monthly bill printing, on demand account review with up-to-the-moment transaction reporting and special group billing at different times during the month. Daily transactions are printed to a daily log together with full accounting and fee productivity analysis listed by doctor. Up to five printers can be supported. Preview manuals are available for $50.00.

MEDICAL OFFICE MANAGEMENT PC

CMA MICRO COMPUTER DIVISION

This program is a complete medical office administrative package for solo practitioners or small group practices. The system includes 3 major elements: appointment scheduling with patient record keeping, private patient accounts receivable, and insurance company claim forms preparation. Other features include: 99,000 patients, 19,000 appointments, AMA claim form, collection report, private A/R aged, RVS codes, productivity report, backup diskettes, 2,500 procedures, 7,750 transactions, instant statement, balance

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query, edit/adjust system, ICDA codes, modifiable, comprehensive manual, 1 to 10 providers, menu driven, technical support, Hotline service, upgradable and technical newsletter. A special version is available for the IBM PC with hard disk and ram disk. Is a complete medical office administrative package for solo practitioners or small group practices. The appointment scheduling and patient record keeping element allows for the creation of permanent and temporary patient record files, the scheduling of patient appointments and the preparation of daily appointment schedules. The private patient accounts receivable element allows for the custom creation of professional fee schedules, the input of payments and charges, the daily reporting of billing activity, and the preparation of private patient bills. The third party claim form preparation element allows for the custom creation of procedure descriptions, the use of RVS, ICDA or other locally required third party codes and the preparation of the AMA approved universal claim form.

MEDICAL OFFICE MANAGEMENT PCE

CMA MICRO COMPUTER DIVISION

This program is a complete medical office administrative package for specialized practitioners or medium sized group practices. The system includes 4 major elements: accounts receivable, medical diagnostic records management, appointment scheduling and patient record keeping, plus private patient accounts receivable and insurance company claim forms preparation. Other features include: 99,000 patients, 22,000 appointments, AMA claim form, private A/R aged, referral letters, RVS/ICDA codes, medical histories, backup diskettes, 1,750 procedures, 12,000 transactions, balance query, ins. A/R aged, edit/adjust system, collection letters, superbill, patient recall, financial histories, 1 to 10 providers, menu driven, variable period bill, technical support, Hotline service, word processing and a technical newsletter. A special version is available for the IBM PC with a hard disk. The appointment scheduling and patient record keeping element allows for the creation of permanent and temporary patient record files, the scheduling of patient appointments and the preparation of daily appointment schedules. The private patient accounts receivable element allows for the custom creation of professional fee schedules, the input of payments and charges, the daily reporting of billing activity, the preparation of time of service superbills, the maintenance of a continuous patient financial history, the preparation of collections reporting data and the preparation of private patient bills. The third party claim form preparation element allows for the custom creation of procedure descriptions, the use of RVS, ICDA or other locally required third party codes, the preparation of extended diagnostic reports and the preparation of the AMA approved universal claim form. The medical diagnostics records management element allows for the time of service recording of extended diagnostic reporting, the preparation of magnetic chart records and the preparation of medical record letters and other word processing type activity.

MEDICAL OFFICE MANAGEMENT MAC 512

CMA MICRO COMPUTER DIVISION

Includes a private patient accounts receivable, claim form appointments with patient recall, chart and financial histories. Features: 99,000 patients, 24,000 appointments, 1,750 procedure codes, 12,000 transactions, patient bills, interim statements, balance query, private A/R aging, medical history, insurance A/R report, collection letters, financial histories, appointment calendar, not copy protected, daily journal, and much more. Is a complete office management package for physicians. Includes electronic claims capability and data compatibility with other Macintosh Applications. The medical system is designed to work within the AppleTalk Network. Device servers, such as Apple's LaserWriter are fully supported. File Servers, Block Servers and Data Servers available from many AppleTalk network providers are supported for multi-user systems. Data Structures created by the system can also be shared on networks supporting IBM PC-DOS or Microsoft MS-DOS. Also includes AMA Paper Claim Form, ANSI Electronic Claim RVS/ICDA Codes, Procedure Modifiers, Walkout Superbill, Productivity Report, Rolodex Labels, Edit/Adjust System, Mailing Labels, Patient Recall, User Newsletter and a "Chain Out" feature which runs on MacWrite, MacPaint, Word and MacDraw from within CMA Medical. Also contains a Collections Report, Easy Data Backup, 24 Hour Support (during the business week) and supports most hard disks. Contains a Macintosh interface and Data Transfer to other Mac Applications.

CLIENT MEDICAL BILLING SYSTEM

CMA MICRO COMPUTER DIVISION

This system is designed for accountants and billing services to use in handling the patient billing for their physician clients. The CLIENT MEDICAL BILLING system allows for the development of separate data bases for each physician client containing his/her patient data for the daily input and reporting of billing activity, for the preparation of private patient statements and for the preparation of universal AMA claim form. The package allows small accounting firms to automate their services to small medical clients and provide professional and efficient accounts receivable management. A preview manual is available for each version for $50.00

CLIENT MEDICAL BILLING PC

CMA MICRO COMPUTER DIVISION

The program is designed to allow the easy management of a physician's accounts receivables by an outside billing service. CLIENT MEDICAL BILLING PC is a complete medical office administrative package for accountants and bookkeeping services to use when managing the receivables of solo practitioners or small group practices. The system includes three major elements: patient master record keeping, private patient accounts receivables and insurance company claim forms preparation. It also allows the accounting professional to keep receivables ledgers of an unlimited number of practices each having up to ten practitioners each. Other features include: 100,00 patients, AMA claim form, appointment reminder, private A/R aged, error capture, RVS code, productivity report, 1,500 procedures, 10,000 transactions, interim statement, file labels, balance query, ICDA codes, modifiable, comprehensive manual, 1 to 10 providers, port, hotline support and a technical newsletter.

HUMMINGBIRD LABORATORY SYSTEM VER-H2T AND H2X

CLOVIS LABORATORY SOFTWARE

A comprehensive patient result database system for smaller medical laboratories which generates patient reports with graphic displays. The Hummingbird Laboratory System provides a comprehensive reporting package with attractive patient reports generated by the system incorporate graphic displays of numeric data which enhances the report's readability. In addition to patient reports, a variety of management reports may be generated These reports include CAP Workload Recording, Worksheets, Billing and Cum Summaries, real-time quality control based on the Westgard Rules, and reporting via modems. The system also includes a user-option function which allows each user to include full or half-page reports, U.S. or Canadian style date format, billing report formats or preprinted or blank paper report format.

ELECTRONIC MEDICAL REFERENCE VER-1.0

CLINICAL REFERENCE SYSTEMS INC

Medical database designed to provide current, authoritative clinical material by problem and diagnosis. Provides the primary care provider with current, authoritative diagnostic and management information to meet 80 percent of the information requests of the typical clinician. The user can verify diagnoses, check lab values and drug dosages, and print patient information. The 3.0 megabyte reference is synthesized from current, reliable, authoritative sources by medical school faculty with yearly updates. Fifteen major topics in the domain of family practice cover the most common medical problems seen today. This material is presented in a problem-solving format that lets you move quickly to the level of information you need. The concise writing gets to the heart of a problem with a minimum of words. The EMR provides the right information right now.

PM-100 (PHYSICIANS MICROSOFTWARE MANAGEMENT)

CLEARWATER COMPUTER CENTER INC

This package is an integrated practice management system totally flexible for a wide variety of practices. PM-100 is an efficient way for managing any size of professional office - medical, dental, osteopathic, chiropractic with emphasis on speed of operation and precise data control - simplified entry system - great capacity with minimum space.

POS/1 VER-4.0

CHEN INFORMATION SYSTEMS INC

Medical billing and accounts receivable system. Produces statements and insurance forms. Accounts receivable ageing and revenue analysis with bar graphs. Multiple doctors, practices and insurances. Day sheets, recall notices, referring physicians, audit trails and ledger details. Online update and access by account number or name. Customizable procedure and diagnosis codes. Menu driven, help screens and able to support 3 printers. It features a complete spectrum of functions necessary to streamline your business operations including: Patient Registration Function, Charge Posting Function, Payments and Adjustments Functions, Patient Status and History Function, Insurance Billings and Electronic Claim Submission Functions, Patient Statements Function, Management Reports Function, and File Maintenance and Recovery Function. Full screen data entry with complete cursor control.

NUTRI-BYTES

CENTER FOR SCIENCE-PUBLIC INTR

A three program package that teaches the basics of nutrition and provides an up-to-date dictionary of common food additives. The programs are entirely menu-driven and simple to use. The program NUTQUIZ takes an amusing look at some of the most important principles of nutrition by testing your knowledge of diet and disease. Wrong answers prompt the computer to offer explanations that plug the gaps in your understanding of nutrition. CHEF lets you analyze your eating habits by identifying you own dietary strengths and weaknesses. The fictional "Chef Penny-pincher" teaches you how to improve your diet and cut costs at the same time. The "chef" offers personalized advice based on your answers. CHEF focuses on types of foods rather than Recommended Dietary Allowances. FOODADD is all about food additives. A quiz game asks about some of the most dangerous food additives and the foods where they are found. An additive data base describes the safety

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of common food chemicals and explains their uses.

MSFP - MEDICAL

C M COMPUTERS INC

Complete A/R system generating patient statements and insurance forms, full management reporting and appointment scheduling. Other features include: Patient Registration, bank deposit slips, mid-month statements, monthly cycle billing, instant statements, instant insurance forms, transfer accounts, combine duplicate accounts, rebill insurance transactions, history analyzer and service analysis. It will also print fee slips/superbills, delinquent ledger, patient Rx, multiple recalls, referring Doctor letters, collection letters, credit balance report, agreed payments, contract billing agreement, aging report, open-end insurance listing, patient control codes, post insurance payments(tied to specific transactions), batch balance report and Daily Reports. All configurations are multi-user, multi-tasking.

DOCTORS

BICARSA PLUS

This package is designed for the Family Practice environment by experienced medical management consultants. DOCTORS maintains standardized information on each patient, locates account by name or by account number and posts charges/payments and adjustments quickly. DOCTORS also verifys the validity of CPT 4 or (RVS) codes and IC 09-CM diagnostic codes as charges are posted. Two insurance records per account can be maintained and the insurance forms printed along with insurance status reporting. Time payments can be tracked and collection notices can be produced.

WISC-R REPORT WRITER

BERTAMAX INC

Prints individualized reports for clients who have taken the WISC-R intelligence test. Developed by a practicing licensed psychologist to print up individual reports for clients. WISC-R scores are input, client's name and other information is input in response to questions asked by the system. A 6-page report is generated using the client's name. The report includes a summary of performance on the WISC-R, a profile, and recommendations for remediating or handling problems in any area.

DMEDICAL HEALTHCARE OFFICE MANAGEMENT

BASE SOFTWARE INC

A comprehensive medical practice software package providing medical and accounting data storage for billing, correspondence, etc. A relational data base package that uses query by fill-in-the-blanks screen mode, host interface for word processing or forms/list management, single or multi-user, less that 300k bytes for ramdisk processing, 65,000 records per file, activity status separation of patient records, inactive patient archiving, 8 Doctors or Unassigned, 90 Insurance groups, 90 Place of Service codes, 35 types of credit codes, 65,000 procedure and diagnosis codes, instant (realtime) file, update, no end-of-month processing, transaction posting, batch posting, "windowing software," name or account number filing and printing, best guess name searches, full 25 character patient name field, complete mail-merge interface, user defined printing of forms or business stationary, primary or secondary insurance billing or resubmit and medical/history notes management.

MICROMED (RADIOLOGY)

ARTICULATE PUBLICATIONS INC

MICROMED is a comprehensive radiology office management program that runs on most of the popular microcomputers on the market. Functions include patient registration, patient recall, charge entry, payment and adjustment entry, patient billing, insurance billing, super-bill billing, mail list system, inquiry system, word processing and monthend processing. It features over 20 reports routinely produced, customizable editing, electronic claims submission option, automatic dunning notices, cross-referenced insurance codes and electronic mail billing. Can automatically purge "0" balance accounts. Includes multi-location capability. Available in 8 bit or 16 bit, single or multi-user, color or mono.

MICROMED (MULTI-LOCATION)

ARTICULATE PUBLICATIONS INC

This is a comprehensive medical office management program that runs on most of the popular microcomputers on the market. MICROMED (MULTI-LOCATION) handles up to 20 office locations and up to 99 providers of service. Reports can be generated by location, by provider and composite. Functions include patient registration,patient recall, charge entry, payment and adjustment entry, patient billing, insurance billing, super-bill billing, mail list system, inquiry system, word processing and monthend processing. It features over 20 reports routinely produced, customizable editing, electronic claims submission option, automatic dunning notices, cross-referenced insurance codes and electronic mail billing.

MICROPRACTIC

ARTICULATE PUBLICATIONS INC

This is a comprehensive chiropractic office management program that runs on most of the popular microcomputers on the market. MICROPRACTIC handles permanent 'verbal' diagnostic paragraphs for each patient and can print them on insurance form. Also includes non-active patient recall. Functions include patient registration, patient recall, charge entry, payment and adjustment entry, patient billing, insurance billing, super-bill billing, mail list system, inquiry system, word processing and monthend processing. It features over 20 reports routinely produced, customizable editing, electronic claims submission option, automatic dunning notices, cross-referenced insurance codes.

MICROMED (ANESTHESIOLOGY)

ARTICULATE PUBLICATIONS INC

This is a comprehensive anesthesiology management program that runs on most of the popular microcomputers on the market. MICROMED handles risk modifiers, table-based dollars per unit for each provider, base units and calculated time units based on elapsed time and two different rate periods. Functions include patient registration, patient recall, charge entry, payment and adjustment entry, patient billing, insurance billing, super-bill billing, mail list system, inquiry system, word processing and monthend processing. It features over 20 reports routinely produced, customizable editing, electronic claims submission option, automatic dunning notices, cross-reference insurance codes.

MICROMED (THE NEW)

ARTICULATE PUBLICATIONS INC

This is a comprehensive medical office management program that runs on most of the popular microcomputers on the market. MICROMED functions include patient registration, patient recall, charge entry, payment and adjustment entry, patient billing, insurance billing, super-bill billing, mail list system, inquiry system, word processing and monthend processsing. It features over 20 reports routinely produced, customizable editing, electronic claims submission option, automatic dunning notices, cross-referenced insurance codes, electronic mail billing, diskette billing, tape billing and unlimited patient storage.

WECHSLER INTERPRETATION SYSTEM

APPLIED INNOVATIONS INC

Collection of programs that lends greater efficiency to producing WISC-R and WAIS-R evaluations and reports. This program consists of a collection of computer programs reducing the amount of time required to produce WISC-R and WAIS-R evaluations and reports without sacrificing quality. It takes approximately ten minutes to create a report using the WIS after the test has been administered and scored. It produces two types of reports: Clinical report for use by a mental health professional and Parent report suitable for clients and parents or guardians of clients. It is menu-driven with screen prompts to guide the user through the various operational stages of the program. These reports are narrative in style and can be printed. A sample clinical report follows. The parent report presents similar interpretive informa-

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tion in language suitable for a parent or other layman.

SYMPTOM CHECKLIST PROGRAM

APPLIED INNOVATIONS INC

Provides for rapid input of the 90 item scores of the SCL-90-R symptom checklist in less than two minutes. Scores and interprets. The 90 symptoms are organized into 12 subscales. After entering the scores, the program prints a graphic profile of T-scores and an interpretation. The SCL-90-R must be administered using the standard procedures for the checklist. Each interpretation has three sections: describes pathological behavior, indicates client symptoms and compares client data with standard patient group profiles.

SBORDONE-HALL MEMORY BATTERY

APPLIED INNOVATIONS INC

Provides fully automatic serial testing of 18 discrete memory functions utilizing computer generated test stimuli. Produces a comprehensive quantitative and qualitative analysis of patient's performance in comparison to normative data. Personalized testing, understandable by all levels of users with little or no supervision required. Excellent for clinical assessment, cognitive rehabilitation or research.

RORSCHACH INTERPRETATION

APPLIED INNOVATIONS INC

Interpretive aid for evaluating the relationship between formal scores and their magnitude of formally scored Rorschach parameters. Generates descriptive/interpretive hypotheses based on ten indices taken from the structural summary that must undergo clinical validation. This saves valuable clinical time by evaluating the relationship between formal scores and their magnitude. The program generates a two page report. The first page contains a T-score graph of the ten structural summary indices and demographic data about the test taker. The second page of the report contains interpretive hypotheses grouped into several areas: normal traits, neurotic indicators, indications of personality or conduct disorders, phychotic symptoms, defense mechanisms, diagnostic suggestions, and treatment considerations. After familiarity has been established with the system, total scoring and Rorschach write-up time should be reduced by 10 or 20 minutes.

PROJECTIVE DRAWINGS: COMPUTER ANALYSIS

APPLIED INNOVATIONS INC

Other Vendors: Reason House

Computer analysis facilitates the scoring and interpretive analysis of the House-Tree-Person and Human figure drawing tests. The program provides a clinical observations section that can be customized, and an interpretive narrative covering 13 topics.

PROBLEM-SOLVING REHABILITATION II

APPLIED INNOVATIONS INC

Improves planning skills to facilitate effective problem-solving behavior and trains the patient to plan and evaluate future action.

PROBLEM-SOLVING REHABILITATION I

APPLIED INNOVATIONS INC

Provides training in visual-spatial problem-solving skills through use of a wide range of systematic tasks.

MMPI SCORING

APPLIED INNOVATIONS INC

Quickly and accurately scores five versions of MMPI: Form R, The Group Form, Card Sort, MMPI-399, and MMPI-168. This scoring program allows microcomputers to score a large number of MMPI scales including: the Validity Scales, Clinical Scales, Frequently Scored Scales, including the MacAndrews Alcoholism Scale, Harris, Lingoes and Serkownek Subscales, Wigging Content Scales, Wiener-Harmon Subtle-Obvious Subscales and Tryon, Stein and Chu Cluster Scales. The computer scoring of the MMPI is more consistent and error-free than hand scoring and is very cost-effective. The test must be administered in one of the standard paper and pencil formats. Then, the True, False and Cannot Say responses are entered into the computer. It scores five MMPI forms: Form R, The Group Form, The Individual Form (card sort), MMPI-399 (first 399 items of Form R), MMPI-168 (a short form of MMPI). This menu-driven program allows the user to select several versions of the MMPI for scoring. This program can be integrated with the MMPI Interpretation Program.

MMPI INTERPRETATION

APPLIED INNOVATIONS INC

Designed to be a clinical tool. Produces a 5-6 page narrative report, based on the interpretation and clinical experience. Comprised of several sections: Validity Scales Interpretation, Personal Traits, Social Functioning, Dynamics, Sonatic Concerns, Treatment Suggestions, DSM-III Diagnostic Suggestions, Chemical Abuse Profile, and Offender Profile Interpretation. Narrative interpretations are based on configural or multiple code types. The clinician must enter the T scores from the Four Validity and ten Clinical Scales and at the user's option, the T Scores from four new scales - the Anxiety Scale, the Repression Scale, the Ego Strength Scale, and the MacAndrews Alcoholism Scale. This program can be integrated with the MMPI Scoring Program. When used with the Scoring Program the T scores do not have to be entered manually: the scores will be automatically passed from the scoring program to the interpretation program. The interpretive statements are generated by multi-point configural scores based on up to four of the highest elevated scales. Interpretive statements and their "trigger codes" are provided in the user manual for the practitioner's reference. The program may be configured to print the general profile interpretation with any, all, or none of the other sections.

IN-SITE BILLING SYSTEM

APPLIED INNOVATIONS INC

A comprehensive, flexible office administration and billing system designed exclusively for the mental health practitioner. Input information about a new client by typing your responses, as requested by the computer, for each client. The program contains a full list of DSM III diagnoses to facilitate standardized insurance reimbursement and will accept up to 40 additional diagnoses. Select the clients you want to bill and the bills are automatically printed out. Medicaid, Medicare, Champus and private insurance forms are printed for all active accounts. Administrative reports capture key information from the billing system and from the administrative files to assemble summary reports for the practice. Other administrative reports allow you to monitor year to date client activity, determining the history of services provided and payments received. Benefits: allows you to access information from one central location, allows you to use that information to speed up the processing of client bills, insurance forms, and monthly practice status reports and allows you to gather accurate information quickly on accounts with past-due balances. This office management system

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Table II

Bibliography of Medical Uses of Computers (Culled From Various DIALOG Databases)

1. A Compendium of Medical Software for Microcomputers.
Polacsek, R.A.
Johns Hopkins University, Baltimore, MD, 21205
M.D. Computing Vol.1, No. 6, 1984, P. 28-55. 27 Pages.

2. A Computer Program for Detection of Segmental Contraction
Abnormalities By the Left Ventricular Cineangiogram.
Nose, Y.; Watanabe, Y.; Yokota, M.; Nakamura, M.
Computer Programs in *Biomedicine* Vol.17, No.1/2, Aug./Oct. 1983, P. 101-106. 5 Pages.

3. A Computer Program Using a Nested Analysis of Variance in Morphometric Sampling.
Kornegay, W.D.III; Poole, M.C.
School of Medicine, East Carolina Univ., Greenville, NC 27834
Computer Programs in *Biomedicine* Vol.16, No.3, June, 1983, P. 155-160. 5 Pages.

4. A Directory of Medical Software Companies.
Polacsek, R. A.
M.D. Computing Vol.2, No.4, July-Aug. 1985, P. 47-53. 7 Pages.

5. A Dose of Micro-to-Mainframe Medicine.
Inglesby, T.
Micro Communications March 1984, P. 31.

6. A Drill and Practice Program for Online Retrieval.
Boyce, B.R.; Martin, D.; Francis, B.; Sievert, M.E.
Louisiana State University, LA 70803
Journal of the American Society for Information Science Vol.35, No.2, March 1984, P. 129-134. 5 Pages.

7. A Fast Overall Picture for Medical Professionals.
Anon
Computer Graphics World Vol.6, No.11, Nov. 1983, P. 98,100.

8. A Model for Software Exchange: The College of American Pathologists Approach.
Walters, R.F.
Californina, Univ. of (Davis) , Davis, CA
M.D. Computing Vol.1, No.5, 1984, P. 69-73,75. 5 Pages.

9. A Model Of Regional Ventilation-Perfusion Inhomogeneity In The Avian Lung.
Hempleman, S.C.; Adamson, T.P.; Burger, R.E.
Computer Programs in *Biomedicine* Vol.17, No. 1/2, Aug./Oct. 1983, P.11-18, 8 Pages.

10. A New Computerized Tomographic-Aided Robotic Stereotaxis System.
Kwoh, Y.S.; Reed, I.S.; Shao, H.M.; Chen, J.Y.; Jonckheere, E.; Truong, T.K.
Memorial Medical Center, Long Beach, CA, 90801
Robotics Age Vol.7, No.6, June 1985, P. 17-22. 5 Pages.

11. A New Method for Automatic Metaphase Finding Adaptable to Different Chromosome Preparations.
Schoevaert-Brossault, D.; Leonard, C.; Selva, J.
Hospital de Bicetre, Bicetre, France
Computer Programs in *Biomedicine* Vol.16, No.3, June 1983, P. 195-202. 6 Pages.

12. A Primer on Word Processors - With Three Examples.
McDonald, C.J.
M.D. Computing Vol.1, No.2, 1984, P. 26-35. 8 Pages.

13. A Sampling of Hardware and Software.
Roberts, K.
Medicine & Computer Vol.1, No.2, Jan. 1984, P. 50-55. 5 Pages.

14. A Suitable Case for Treatment.
Parkinson, J.
Sifo Group
Middle East Computing No.18, Dec.-Jan. 1984/1985, P. 21-23,25. 3 Pages.

continued on page 228

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Medical Resources continued from page 226

bills clients directly, fills out third party payment forms, provides an accounts receivable summary and ages accounts 30, 60, 90, and 120 days. The fee schedules can accommodate sliding-scale billing.

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Fully automatic serial testing of complex attention skills utilizing randomly generated test stimuli. Program actually trains the individual how to take the test. Program maintains up to 900 subject files (bibliographic data, test scores, histograms of patient performance, etc.). Program generates various statistical and trend analyses.

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Other Vendors: Digital Marketing

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CHILD/ADOLESCENT/ ADULT DGNST SCREENING BATTERIES

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Other Vendors: Reason House

Identify diagnostic possibilities out of all potential diagnoses listed in the DSM III. Each program consists of a questionnaire for the patient and/or parent, and a questionnaire for the clinician. The data compares the responses to all DSM III diagnoses. The configural pattern of answers provided in each questionnaire are matched according to suggested diagnostic possibilities, and those that are compatible are selected.

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Spotlight on Medical Resources will be continued next month. We aslo plan to issue the complete article in booklet form in the near future. ●

Table II
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15. A Surgical Cut into Computers.
Davis, Roger S.; Jack, David B.
M.D. Computing Vol.3, No.1, Jan./Feb. 1986, P. 21-28. 8 Pages.

16. A System for the Analysis of Long-Term Electrocardiographic Studies in Clinical Research and Training.
Lastra, A.A.; Pritchett, E.L.C.; Reiter, J.J.; Smith, M.S.; Smith, W.M.
Duke University Medical Center, Durham, NC, 27710
Computers and Biomedical Research Vol.16, No.4, Aug. 1983, P. 340-346. 7 Pages.

17. A System for the Positioning Correlation Between Computed Tomographs and Conventional Radiographs.
Mauo. I.; Kaneko, M.; Ohshima, M.
Kamamatsu University School of Medicine; Asahi Medical Corp., Tokyo 100, Japan
Computerized Radiology Vol.7, No.1, Jan.-Feb. 1983, P. 61-66. 6 Pages.

18. Advanced Medical Expert System.
Anon
Software World Vol.16, No.3, 1985, P. 23.

19. Advanced System to Automate Clinical Labs.
Anon
Computer Systems in Southern Africa Vol.13, No.7, July 1983, P. 58.

20. Ambulatory Care - 1985.
Stefanchik, M.F.
Computers in Healthcare Vol.6, No.7, July 1985, P. 44-45.

21. An Ethical Question.
Bez, H.
McAuto Health Services, South Africa
Computer Systems in Southern Africa Vol.13, No.7, July 1983, P. 47-48.

22. An Information System Coordinates Patient Care.
Bodendorf, F.
Freiburg Cancer Center, Freiburg, West Germany
Data Report Vol.12, No.4, Dec. 1984, P. 31-35. 5 Pages.

23. An Outcome-Coded Birth File from Machine Readable Vital Records.
Holland, S.; David, R.J.
Northwestern University , Evanston, IL
Computers in Biology and Medicine Vol.15, No.1, 1985, P. 25-39. 12 Pages.

24. Applications of a Signal Averager for Neurophysiological Investigations in Clinical Function Laboratories Using a General Signal-Processing Unit.
Van Den Akker, T.J.; Ros, H.H.; Koeleman, A.S.M; Saat, R.G.M.
Computer Programs in *Biomedicine* Vol.17, No.3, Dec. 1983, P. 249-260. 10 Pages.

25. Applications of an Inexpensive Microcomputer for the General Radiologist.
Richardson, M.L.
USAF Hospital, Mather AFB, CA, 95655
Computerized Radiology Vol.7, No.1, Jan.-Feb. 1983, P. 49-60. 12 Pages.

27. Appointment Scheduling by Computer.
Roach, V.K.
Technology Management, In-

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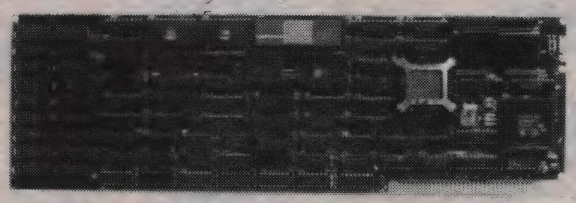

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• FULLY SOFTWARE/HARDWARE TRANSPARENT	YES	NO	NO	YES
• NO SOFTWARE PATCHES NEEDED	YES	NO	NO	NO
• RUNS LOTUS / INTEL EMS	YES	NO	NO	YES
• RUNS AT PROGRAMS	YES	NO	YES	YES
• NATIVE 8028 MODE	YES	YES	YES	NO
UPGRADEABILITY:				
• 80287 CO-PROCESSOR OPTION	YES	NO	YES	YES
• MULTITASKING OPTION	YES	NO	NO	NO
• MULTIUSER OPTION	YES	NO	NO	NO
PERFORMANCE:				
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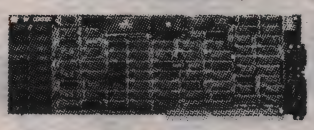

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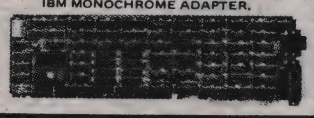

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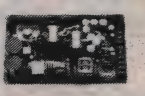

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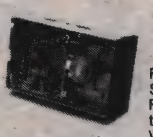

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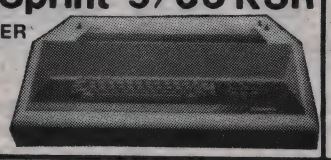

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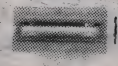

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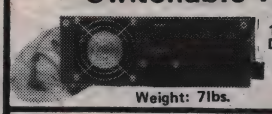

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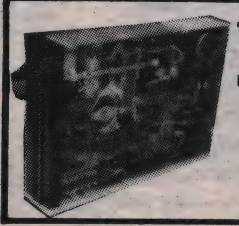

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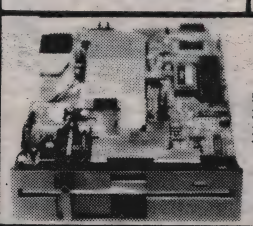

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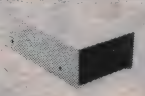

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dianapolis, IN
M.D. Computing Vol.1, No.6, 1984, P. 17-26. 9 Pages.

28. Arbitrary-Waveform Generators Provide Versatility and Utility.
Schutz, R.
Wavetek Corp.
EDN Vol.29, No.7, April 5, 1984, P. 199-204,206+. 8 Pages.

29. Are You Guilty?
Dudley, A.
Medicine & Computer Vol.1, No.5, July/Aug. 1984, P. 25-27. 3 Pages.

30. Automating the Medical Records Department at HUP.
Baur, M.B.; Viale, R.O.
Computers in Healthcare Vol.4, No.12, Dec. 1983, P. 44-45.

31. Beyond Essentials.
Freedman, B.
PC (Independent Guide to IBM Personal Computers) Vol.3, No.14, July 24 1984, P. 291,293.

32. Bringing the Lab to You.
Dudley, A.
Medicine & Computer Vol.1, No.7, Nov.-Dec. 1984, P. 31-33.

33. Bulletin on ASTRA Systems: Beckman.
Anon
Computers in Healthcare Vol.5, No.8, Aug. 1984, P. 92.

34. Buyer's Guide '85: Medical Practice-Management Packages.
Cushing, C.E.
Medicine & Computer Vol.2, No.1, Jan./Feb. 1985, P. 60-63,66+. 6 Pages.

35. Calculator Programs to Deal with Non-Steady State, Multiple Dosage
Regimen Clinical Pharmacokinetics.
Ensom, R.J.; Nakagawa, R.S.
University of British Columbia, Vancouver, BC, V6T 1W5, Canada
International Journal of Bio-Medical Computing Vol.14, No.4, July 1983,P. 287-309. 23 Pages.

36. Choosing a Medical Accounting Package.
Day, B.
Computers in Medicine Special Interest Group
Computer Systems in Southern Africa Vol. 13, No.7, July 1983, P. 44-45.

37. Circulation (Organs).
Anon
Access: *Microcomputers in Libraries* Vol.3, No.1, Spring 1983, P. 21.

38. Clinical Research System.
Katz, Barry
M.D. Computing Vol.3, No.1, Jan./Feb. 1986, P. 53-55,61. 4 Pages.

39. CMA's System Has Its Ups and Downs.
Friedman, B.
Medicine & Computers Vol.1, No.5, July/Aug. 1984, P. 20-21.

40. CMS Adds McAuto to Pharmakon System.
Anon
Computers in Healthcare Vol.4, No.4, April 1983, P. 14.

41. Communications: Cymalink Support Service.
Anon
Hardcopy Vol.13, No.8, Aug. 1984, P. 117.

42. Computer Aided ECG Interpretation.
Ginzton, L.E.; Laks, M.M.
Harbor UCLA Medical Center
M.D. Computing Vol.1, No.3, 1984, P. 36-44. 7 Pages.

43. Computer Graphics and an Interactive Stereotactic System for CT-Aided
Neurosurgery.
Rhodes, M.L.; Glenn, W.Y.; azzawi, M.Y.; Howland, R.S.; Hibbard, D.L.
Multi-Planar Diagnostic Imaging, Inc.
IEEE Computer Graphics and Applications Vol.3, No.5, Aug. 1983, P. 31-37. 7 Pages.

44. Computer Operating Systems a Hedge Against Computer Obsolescence?
Speck P.K.
Medical Computer Journal Vol.3, No.6, 1984, P. 161-164. 4 Pages.

45. Computer-Aided Information Management Systems in Clinical Trials.
Pollak, M.N.
Department of Medicine, University of Toronto, Toronto, Ontario, Canada
Computer Programs in *Biomedicine* Vol.16, No.3, June 1983, P. 243-252. 9 Pages.

46. Computer-Assisted Urological Test Facilities Diagnosis.
Anon
Computer Vol.18, No.4, April 1985, P. 104.

47. Computerized Anatomy Instruction.
Meals, Roy A.; Kabo, J. Michael
M.D. Computing Vol.3, No.1, Jan./Feb. 1986, P. 30-34. 5 Pages.

48. Computerized Clinical Decision Aids.
Wigton, R.S.
Nebraska, Univ. of College of Medicine, Omaha, NE
M.D. Computing Vol.2, No.5, Sept.-Oct. 1985, P. 37-39. 3 Pages.

49. Computerizing a Small Practice.
Friedman, B.
PC (Independent Guide to IBM Personal Computers) Vol.3, No.11, June 12, 1984, P. 355,356,357.

50. Computerizing the Medical Profession.
Maremaa, T.
Popular Computing Vol.3, No.12, Oct. 1984, P. 88,91-92. 3 Pages.

51. Computers with Heart.
Porter, M.
PC (Independent Guide to IBM Personal Computers) Vol.4, No.9, April 30, 1985, P. 173-174,177.

52. Consultants Perspective on Medical Office Computerization.
Freedmen, E.; Hecht, E.M.; Whiteside, G.
Medical Planning & Management
Computers in Healthcare Vol.6, No.1, Jan. 1985, P. 62,64,66+.

53. Creating 3-D Models for Medical Research: Processing Images of Structures Never Before Seen.
Latamore, G.B.
Computer Graphics World Vol.6, No.5, May 1983, P. 31-34,36,38. 6 Pages.

54. Dbase II and the Surgeon.
Chellappa, M.
Chang Hospital, Sinagpore
Interface Age Vol.9, No.10, Oct. 1984, P. 44-45.

55. Dentistry Made Painless.
Gutkin, D.
PC (Independent Guide to IBM Personal Computers) Vol.3, No.3, Feb. 21, 1984, P. 353-357.

56. Design, Implementation and Evaluation of a Microcomputer-Based Portable Arrhythmia Monitor.
Thakor, N.V.; Webster, J.G.; Tompkins, W.J.
Medical & Biological Engineering & Computing Vol.22, No.2, March 1984, P. 151-159. 9 Pages.

57. Detection Of Extracellular Action Potentials In Noise For The Control of Microelectrode Advancement.
Scobey, R.P.
Computer Programs in *Biomedicine* Vol.17, No.1/2, Aug./Oct. 1983, P. 3-10. 7 Pages.

59. Diagnostic Problem Solving by Computer: A Historical Review and the Current State of the Science.
Kleinmuntz, B.
Illinois, Univ. of , Chicago, IL, 60680
Computers in Biology and Medicine Vol.14, No.3, 1984, P. 255-270. 15 Pages.

60. Digital Paintbrush System.
Dowell, K.
PC World Nov. 1985, P. 259,262,266.

61. "Doctor, I Think Mr. Day Is Hypoxemic." "O.K., Let's Take a Look At His Blood-Gas Values..."
Helm, S.
Medicine & Computer Vol.1, No.3, Feb. 1984, P. 24-27.

62. Doctors Learn Via Diskette.
Bergheim, K.
InfoWorld Vol.6, No.22, May 28, 1984, P. 26.

63. Dr. Com Puter's Report.
Anon
Medical Computer Journal Vol.3, No.6, 1984, P. 156-160. 5 pages.

64. DRG's Put New Jersey Medical Records in the National Spotlight.
Bennett, S.P.
Computers in Healthcare Vol.4, No.12, Dec. 1983, P. 28-29.

65. Elsevier Launches Software in Analytical Chemistry.
Anon
Online Review Vol.8, No.1, Feb. 1984, P. 22,24.

66. Emergi-DOS.
Sea, C.; Clark, A.
Ochsner Hospital, New Orleans, LA
M.D. Computing Vol.2, No.4, July-Aug. 1985, P. 28-33. 6 Pages.

67. Evaluating a Hospital Pharmacy Computer System.
Grohman, G.
Computers in Healthcare Vol.4, No.12, Dec. 1983, P. 42-43.

68. Examining the Medical Market.
Rothfeder, J.
Computer Merchandising Vol.3, No.6, Nov. 1983, P. 162,166,168-169. 3 Pages.

69. Exchange Chaos for Order.
Helm, S.
Medicine & Computer Vol.1, No.2, Jan. 1984, P. 28,30+. 3 Pages.

70. Exchange of Environmental Health Information between Microcomputers.
Eckert, R.R.; Pabon, J.R.
Catholic University of Puerto Rico, Ponce, Puerto Rico
International Journal of Bio-Medical Computing Vol.15, No.3, May/June 1984, P. 183-197.

71. Fast Relief: Practice Management Software and DEC Rainbows Help Doctors Put Paperwork in Its Place.
Lubonsky, B.
Digital Review Vol.2, No.5, Feb. 1985, P. 83-86. 3 Pages.

72. First Aid.
Huse, S.M.
Compute's Gazette Vol.2, No.10, Oct. 1984, P. 95, 159-163. 4 Pages.

73. Four-Dimensional Processing Tools for Cardiovascular Data.
Wixson, S.E.
University of Alabama at Birmingham
IEEE Computer Graphics and Applications Vol.3, No.5, Aug. 1983, P. 53-59. 7 Pages.

74. Fractures of the C-1 Vertebra: Report of Two Cases Documented with Computed Tomography.
Swartz, J.D.; Puleo, S.
Medical College of Pennsylvania and Hospital, Philadelphia, PA, 19129
Journal of Computed Tomography Vol.7, No.3, Aug. 1983, P. 311-314. 3 Pages.

75. Health And Efficiency.
Naylor, C.
Practical Computing Vol.7, No.4, April 1984, P. 74-78. 5 Pages.

76. Healthcare Vendor Directory.
Anon
Computers in Healthcare 1985 Market Directory Edition, Vol.6, No.9, 1985, P. 10,12,14+. 42 Pages.

77. Hospitals Don't Buy Many Personal Computers.
Henry, H.; Gilbert, B.
Market Information Center, Framingham, MA
List Vol.11, No.3, March 1984, P. 36-37.

78. How to Choose a System.
Anon
Medicine & Computer Vol.1, No.2, Jan. 1984, P. 34-35.

79. How to Sell to Doctors.
Good, P.I.
Software Retailing Vol.2, No.2, Dec. 1983, P. 33-34,39.

80. IBMs in the Lab: Programming Experiments.
Martin, L.; Jeffreys, B.
Mount Sinai Medical Center, Cleveland, OH
PC (Independent Guide to IBM Personal Computers) Vol.3, No.19, Oct. 2, 1984, P. 285-286,288.

81. Implementation: The Microcomputer in a Pharmacy.
Jackson, J.
Interface Age Vol.8, No.3, March 1983, P. 48-50,172.

82. In-Search.
Elia, J.J.Jr.
New England Journal of Medicine
Popular Computing Vol.4, No.1, Nov. 1984, P. 149-150,151.

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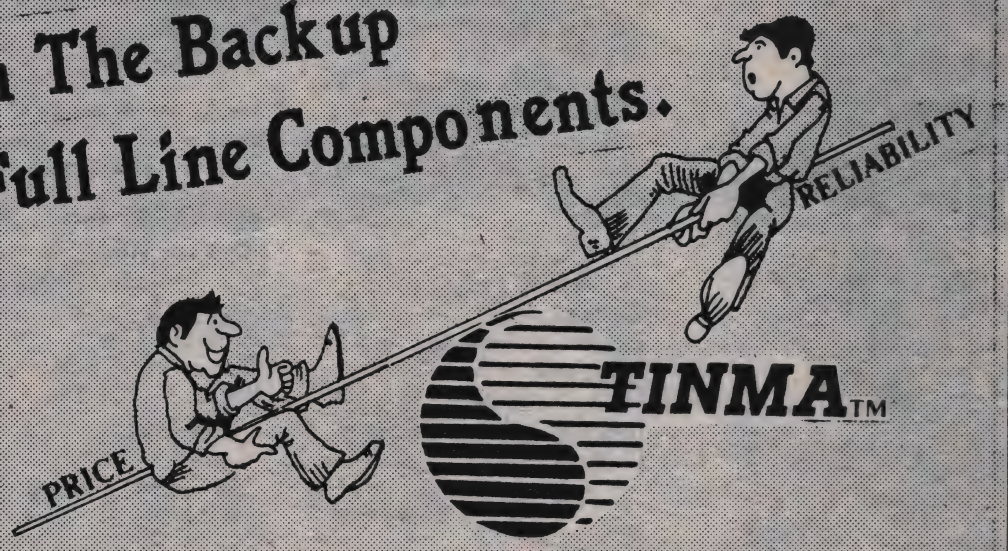

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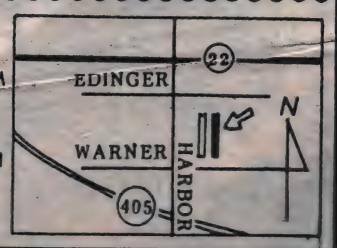

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Table II
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83. Inevitability of a New Practice Associate.
Singer, J.A.
Computers in Healthcare Vol.4, No.10, Oct. 1983, P. 74,76.

84. Insights: An Exciting (and Prosperous) Future.
Anon
Electronic Imaging Vol.3, No.3, March 1984, P. 68-70. 3 Pages.

85. International Medical Corporation's Multi-Med.
Anon
UNIX World Vol.1, No.5, Oct. 1984, P. 122.

86. Job-Specific Applications.
Seger, K.
PC World Winter 1984, P. 214-215,217+. 33 Pages.

87. Laboratory Instrument Interface System (LIIS): A Unit for the Acquisition, Temporary Storage and Transfer of Data to a Microcomputer.
Danforth, D.R.; Stouffer, R.L.; Bosnos, M.
Arizona, Univ. of, Tucson, AZ
Computers in Biology and Medicine Vol.15, No.2, 1985, P. 95-96,99+. 4 Pages.

88. LABSYS: dBASE II for the Clinical Laboratory.
Anon
Data Based Advisor Vol.2, No.11, Nov. 1984, P. 47.

90. Law: Patents Should Be Good Medicine for Software.
Swartz, H.
Business Computer Systems Vol.2, No.12, Dec. 1983, P. 29-30.

91. Leg Exerciser for Training of Paralyzed Muscle by Closed-Loop Control.
Petrofsky, J.S.; Heaton, H.H.III; Phillips, C.A.
Wright State University, Dayton, OH
Medical & Biological Engineering & Computing Vol.22, No.4, July 1984, P. 298-303. 5 Pages.

92. Letter Frequency Distribution - Cryptology, Part IV; Series.
Andreassen, K.
80 Micro No.41. June 1983, P. 190,192+.

93. LIST Applications Software Locator Directory.
Anon
List Vol.11, No.3, March 1984, P. 1L-23. 23 Pages.

94. Manufacturer's Response.
Dolan, D.M.
Medware
M.D. Computing Vol.1, No. 2, Jan. 1984, P. 24

95. Marketing Computers in an Era of Skepticism.
Ladd, S.
Medicine & Computer Vol.1, No.2, Jan. 1984, P. 66-69. 3 Pages.

96. Matching MARC to a Picture Collection: Development of a Computer Format for Medical Illustrations.
Roberts, J.
University of California, San Francisco, CA 94143
Information Processing & Management Vol.19, No.3, 1983, P. 131-139. 9 Pages.

97. Medaccount: A Medical Accounting Package.
Cushing, M.Jr.
Lawrence General Hospital, Lawrence, MA
M.D. Computing Vol.2, No.1, Jan.-Feb. 1985, p. 51-55,67. 4 Pages.

98. Medical Diagnosis with a PC Twist.
Lener, J.
PC (Independent Guide to IBM Personal Computers) Vol.4, No.9, April 30, 1985, P. 215-217.

99. Medical Record System: CSI.
Anon
Computers in Healthcare Vol.4, No.12, Dec. 1983, P. 56.

100. Medical Records and Clinical Databases: What is the Difference?
Blois, M.S.
California. Univ. of (San Francisco), San Francisco, CA
M.D. Computing Vol.1, No.3, 1984, P. 24,26-28. 4 Pages.

101. Medical Records in the Office.
Drury, B.M.
Pricare, Littleton, CO
Computers in Healthcare Vol.5, No.11, Nov. 1984, P. 64,66.

102. Medical/Dental.
Anon
Software Retailing Vol.1, No.11, Sept. 1983, P. 59.

103. Merging Medicine With The Micro.
Porter, M.
PC (Independent Guide to IBM Personal Computers) Vol.3, No.3, Feb. 21, 1984, P. 157-161.

104. Method for Mapping Cardiac Arrhythmia in Real-Time Using Microprocessor-Based Systems.
Ruiz, R.; Hernandez, C.; Mira, J.
Universidad de Santiago de Compostela, Spain
Medical & Biological Engineering & Computing Vol.22, No.2, March 1984 P. 160-167. 8 Pages.

105. Micro Saves Hospital Time and Money.
Regnante, R.E.
Queset Software, North Easton, MA
Medicine & Computer Vol.2 No.1, Jan./Feb. 1985, P. 22,24-25.

106. Microprocessor-Based Heart Monitoring.
Kapur, P.
CEERI, Pilani, Rajasthan, India
Microprocessors and Microsystems Vol.7, No.1, Jan./Feb. 1983, P. 29-32. 4 Pages.

107. Micros Invade Nuclear Medicine: Add-on Boards Give PCs Power to Process Diagnostic Images.
Porter, R.J.Jr.
Computer Graphics World Vol.8, No.12, Dec. 1985, P. 54-55. 2 Pages.

108. My Search for Medical Software.
Paul, G.H.
Computers in Healthcare Vol.5. No.1, Jan. 1984, P. 50,53+.

109. Needs and Uses.
Douglass, R.J.
Los Alamos National Laboratory
IEEE Spectrum Vol.20, No.11, Nov. 1983, P. 41-45. 4 Pages.

110. New Approaches to Practicing Medicine.
Friedman, B.
PC (Independent Guide to IBM Personal Computers) Vol.4, No.11, May 28, 1985, P. 297-299.

111. New Game Takes Its Medicine - Seriously.
Garry, G.
Educational Computer Vol.3, No.3, May/June 1983, P. 55,72.

112. New Twist on Thermography.
Jekel, L.; Berke, L.M.
Medicine & Computer Vol.1, No.5, July/Aug. 1984, P. 10-12.

113. No Glitter, but Strong Substance.
Friedman, B.
Medicine & Computer Vol.1, No.7, Nov.-Dec. 1984, P. 18-19.

114. North Carolina Baptist Signs with HIS.
Anon
Computers in Healthcare Vol.5, No.6, June 1984, p. 14,16.

115. Nutrition Consult.
Anon
M.D. Computing Vol.2, No.4, July-Aug. 1985, P. 16-17.

116. Obstetrical Ultrasound System: Trinity.
Anon
Computers in Healthcare Vol.4, No.1, Jan. 1983, P. 56.

117. Office Medicine.
Friedman, B.
PC (Independent Guide to IBM Personal Computers) Vol.3, No.18, Sept. 18, 1984, P. 317-319.

118. Office Practice Management: A Directory of Medical Software Vendors.
McDonald, C.J.
Indiana University Medical School
M.D. Computing Vol.1, No.4, 1984, P. 31-37. 7 Pages.

119. On the Job; AI's Where It's At.
Anon
Datamation Vol.31, No.14, July 15, 1985, P. 122.

120. On-Line Analysis of Neuromuscular Bioelectric Potentials.
Quint, S.R.; Howard, J.F.; Antoni, L.
University of North Carolina School of Medicine, Chapel Hill, NC 27514
Computer Programs in *Biomedicine* Vol.16, No.1/2, Feb./April 1983, P. 3-12. 10 Pages.

121. Open Wide.
McGrath, L.
A+ Vol.2, No.12, Dec. 1984, P. 205-209. 4 Pages.

122. Paperchase: A Program to Search the Medical Literature.
Bleich, H.L.; Jackson, J.D.; Rosenberg, H.A.
Beth Israel Hospital, Boston, MA
M.D. Computing Vol.2, No.2, March-April 1985, P. 54,56-58. 4 Pages.

123. Partners-in-Change.
Muller, J.H.
Integrated Medical Education, Lakewood, CO
Computers in Healthcare Vol.6, No.11, Oct. 1985, P. 22-24,25+. 4 Pages.

124. PAS-3 Passes the Test.
Javitt, J.
Medicine & Computer Vol.1, No.7, Nov.-Dec. 1984, P. 20-21.

125. PC Clinical Testing.
Crouch, M.
PC (Independent Guide to IBM Personal Computers) Vol.4, No.4, Feb. 19, 1985, P. 263-264,266.

126. PC Tales: Butterflies, Pretenders, and Dumb Luck.
Strehlo, K.
InfoWorld Vol.7, No.28, July 15, 1985, P. 8.

127. PCs in Prenatal Care.
Porter, M.
PC (Independent Guide to IBM Personal Computers) Vol.4, No.7, April 2, 1985, P. 251-252.

128. PEDPLO: A Pedigree Plot Program.
Sigmund, M.
Computer Programs in *Biomedicine* Vol.17, No.3, Dec. 1983, P. 283-286. 4 Pages.

129. PHR Signs Agreement with Main Hurdman.
Anon
Computers in Healthcare Vol.5, No.6, June 1984, P. 12.

130. Practice Management '85: A Watershed Year.
Dudley, A.; Ketchum, S.E.
Medicine & Computer Vol.2, No.1, Jan./Feb. 1985, P. 36-39. 4 Pages.

131. Practice Management '85: One Good Worker.
Dudley, A.; Ketchum, S.E.
Medicine & Computer Vol.2, No.1, Jan./Feb. 1985, P. 44,46,47.

132. Prediction of Multiple-Dose Blood Level Curves of Drugs with Rapid Changes in Doses and/or Dosing Intervals.
Ng, P.K.; Collins-Nakai, R.L.
Pediatrics, Faculty of Medicine, The University of Alberta, Edmonton, Alberta T6G 2B7, Canada
International Journal of Bio-Medical Computing Vol.14, No.4, July 1983, P. 275-286. 11 Pages.

133. Presentation Graphics: An Introduction and Review of Four Systems.
Glazener, T.T.; McDonald, C.J.
Regenstrief Institute, Indianapolis, IN
M.D. Computing Vol.1, No.3, 1984, P. 56-68. 13 Pages.

134. Preventive Medicine for Medical Office Data.
Rader, R.
Dymek, San Jose, CA
M.D. Computing Vol.2, No.4, July-Aug. 1985, P. 16.

135. Program Assesses Chemical Abuse.
Anon
THE Journal Vol.12, No.9, May 1985, P. 58-59.

136. Programming Skill Pay Off in the ER.
Doyle, D.J.
Medicine & Computer Vol.1, No.5, July/Aug. 1984, P. 42-43.

137. PULSE for Medical Group Practices: CMI.
Anon
Computers in Healthcare Vol.5, No.11, Nov. 1984, P. 68,69.

138. Putting the Medical Library Online: Electronic Bulletin Boards...and Beyond.
Kittle, P.W.
Loma Linda University, Loma Linda, CA, 92354
Online Vol.9, No.3, May 1985, P. 25-30. 4 Pages.

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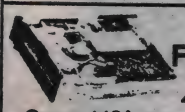

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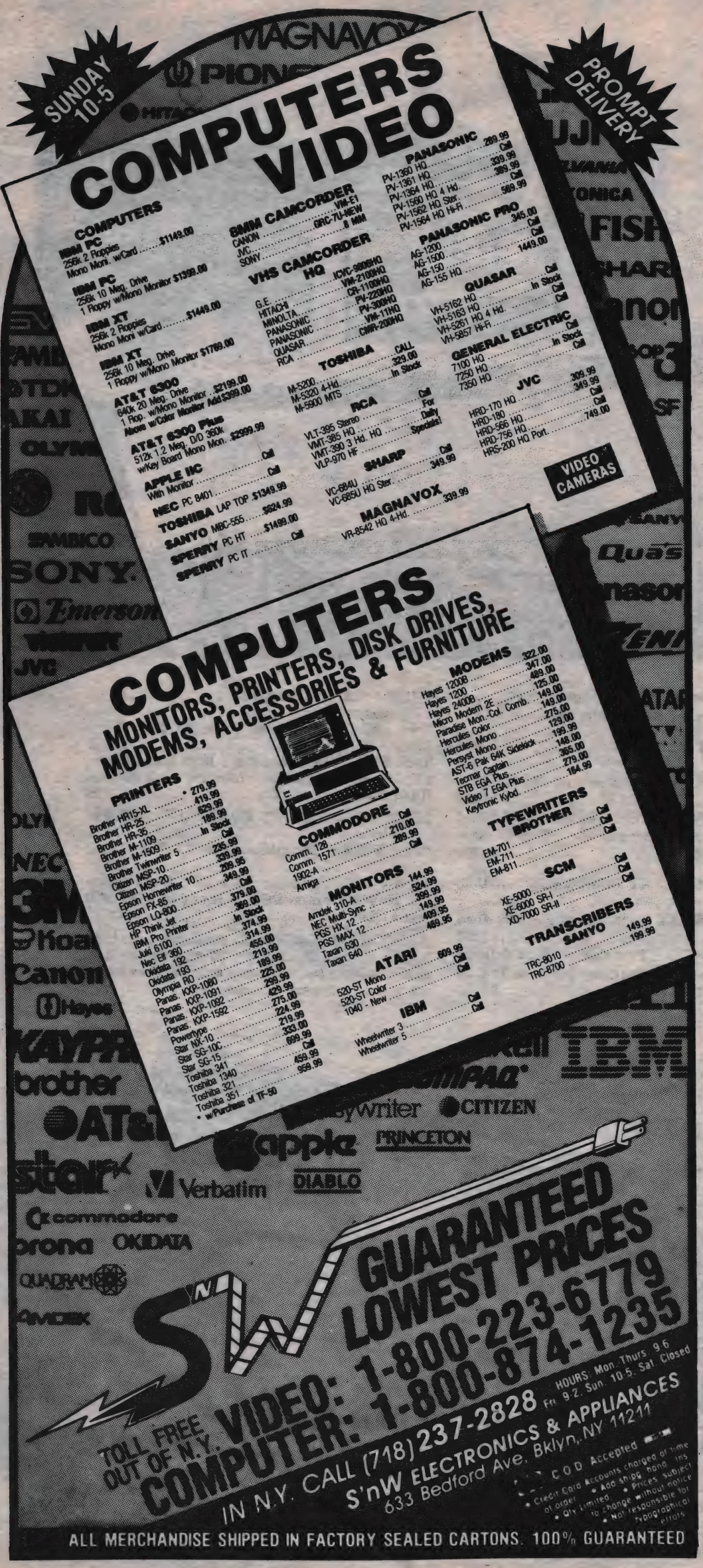

Coming Events

If you know of or have a trade show, swap meet or club meeting connected with the computer field, we'll run an announcement in the COMING EVENTS section FREE of charge.

JUNE

JUNE 1, 1986
The South Orange County Computer Club will hold its 5th ANNUAL SOFTWARE FAIRE at the Brookhurst Community Center in Anaheim. It is located on Crescent Street, just West of Brookhurst (and South of the Santa Ana Freeway). Public Domain software for IBM, CP/M, Apple II and Macintosh will be available. Over a thousand different Public Domain programs will be available. Demonstrations will be given on programs for the IBM, Apple II, Macintosh and CP/M computers. The Software Faire will be held from 10am to 4pm. Admission donation $1.00. For additional information contact Tom Milkie (714) 956-5054.

JUNE 2, 1986
BUYING AN IBM XT CLONE SEMINAR will be held at the Lincoln University in San Francisco, California. The seminar is by Edwin Rutsch, author of *The IBM XT Clone Buyer's Guide*. This seminar begins at 7pm. For additional information contact 431 Ashbury St., San Francisco, California 94117; (415) 552-8648.

JUNE 7, 1986
THE FOURTH ANNUAL NORTH GEORGIA HAMFEST will be held at the Lakeview Fort Oglethorpe High School. There will be forums, prizes, dealers, flea market and ve exams! We ask for a $1 donation at the door. Dealers tables are $10, Flea Market inside $6, Tailgate $2 per space. Go toward North GA on I-75 take exit 140 at mile marker 350, turn west on GA 2, go five miles and the school will be on the left. We are located just 4 miles from Chattanooga! Doors open at 8am ESDT, reservations are suggested. For additional information contact John Ross Amateur Radio Club, P.O. Box 853, Rossville, GA 30741.

JUNE 7-8, 1986
NARA Inc. will sponsor the upper midwest's largest swapfest and exposition of personal computers and software at the Minnesota State Fairgrounds, located on Snelling Ave. north of Highway I-94. Commercial exhibits as well as a giant outdoor flea market featuring a wide variety of electronics and communications equipment. Admission $4 in advance and $5 at the door. For more information, dealer inquiries, or ticket orders contact Amateur Fair, P.O. Box 857, Hopkins, MN 55343; (612) 566-4000.

JUNE 10-12, 1986
The fourth annual COMDEX INTERNATIONAL in Europe, dedicated exclusively to computer industry marketers, independent retailers, distributors and dealers, will be held at the Acropolis, in Nice, France. For additional information contact The Interface Group, 300 First Avenue, Needham, MA 02194; (617) 449-6600.

JULY 1986

JULY 19-20, 1986
THE 1986 ATLANTA HAMFESTIVAL, sponsored by the Atlanta Radio Club, will be held in the Georgia World Congress Center. The all-indoor event will feature over 150 exhibitors, Forums on virtually all aspects of Amateur Radio, as well as a huge, air-conditioned flea market. For further information, send a SASE to the Atlanta Hamfestival Inc., P.O. Box 77171, Atlanta, GA 30357.

SEPTEMBER

SEPTEMBER 2-5, 1986
The first annual COMDEX/AUSTRALIA, dedicated exclusively to computer industry marketers, independent retailers, distributors and dealers, will be held at RAS Showground in Sydney, Australia. For additional information contact The Interface Group, 300 First Avenue, Needham, MA 02194; (617) 449-6600.

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SEPTEMBER 4-6, 1986
The LONG ISLAND COMPUTER & BUSINESS EQUIPMENT SHOWCASE, an exposition for small computer and business equipment users, will be presented at the Nassau Coliseum, Long Island, NY. Geared to business, professional and corporate users of computer systems and business equipment. For additional information contact The Interface Group, 300 First Avenue, Needham, MA 02194; (617) 449-6600.

SEPTEMBER 11-13, 1986
The ninth TAMPA COMPUTER & BUSINESS EQUIPMENT SHOWCASE, an exposition for small computer and business equipment users, will be presented at the Curtis Hixon Convention Center. Geared to business, professional and corporate users of computer systems and business equipment. For additional information contact The Interface Group, 300 First Avenue, Needham, MA 02194; (617) 449-6600.

SEPTEMBER 25-27, 1986
The SAN FRANCISCO COMPUTER & EQUIPMENT SHOWCASE, an exposition for small computer and business equipment users, will be presented at Brooks Hall and Civic Center. Geared to business, professional and corporate users of computer systems and business equipment. For additional information contact The Interface Group, 300 First Avenue, Needham, MA 02194; (617) 449-6600.

October 16-18, 1986
The seventh ATLANTA COMPUTER & BUSINESS EQUIPMENT SHOWCASE, an exposition for small computer and business equipment users, will be presented at the Atlanta Civic Center. Geared to business, professional and corporate users of computer systems and business equipment. For additional information contact The Interface Group, 300 First Avenue, Needham, MA 02194; (617) 449-6600.

October 27-29, 1986
The first annual INTERFACE INTERNATIONAL in Europe Conference and Expositon will be held at the parc des Expositions in Paris, France. For additional information contact The Interface Group, 300 First Avenue, Needham, MA 02194; (617) 449-6600.

October 30-November 1, 1986
The ninth SOUTH FLORIDA COMPUTER & BUSINESS EQUIPMENT SHOWCASE, an exposition of small computer and business equipment users, will be presented at the Miami Expo Center. Geared to business, professional and corporate users fo computer systems and business equipment. For additional information contact The Interface Group, 300 First Avenue, Needham, MA 02194; (617) 449-6600.

NOVEMBER

November 10-14, 1986
The eighth annual COMDEX/Fall, the world's largest computer industry trade show will be held at seven major Las Vegas facilities--Las Vegas Convention Center, the Convention Center's West Hall, the Las Vegas Hilton, Riviera, Sahara, Caesar's Palace, and MGM Grand hotels. For additional information contact The Interface Group, Inc., 300 First Avenue, Needham, MA 02194; (617) 449-6600.

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All User Group entries must be submitted in writing by the first Monday of every month. **Submissions received by the first Monday of July will appear in the September issue.** The listing will be good for three issues thereafter. After this period they will be deleted unless we receive a post card or letter confirming the board is active. It is the responsibility of the person who submitted the listing to mail all corrections, updates, and deletions to *Computer Shopper*. Remember, if you do not let us know when your club is inactive, it will be listed until deleted.

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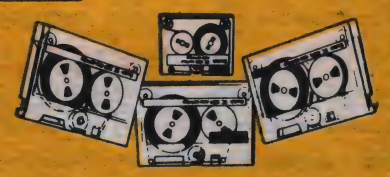

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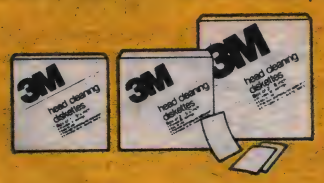

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PINELLAS SANYO USERS GROUP, 1331 SEA GULL DR. SO., ST PETERSBURG, FL 33707
POLK APPLE CORE, 954 W. LEXINGTON ST., LAKELAND, FL 33801

SANYO USERS GROUP OF CENTRAL FLORIDA, 6014 W. HARWOOD ST., ORLANDO, FL 32811; (305) 293-3314
SARASOTA-MANATEE MACINTOSH USERS GROUP, P.O. BOX 25134, SARASOTA, FL 33579
SOUTH FLORIDA COMPUTER GROUP, FT. LAUDERDALE SECTION, P.O. BOX 22267, FT. LAUDERDALE, FL 33335-2267
THE SOUTH FLORIDA ZX USERS GROUP, P.O. BOX 057381, WEST PALM BEACH, FL 33405
SOUTHWEST TECHNICAL PRODUCTS 6800 USERS GRUP, 110 DORY ROAD NORTH, N.P.B., FL 33408
SPACE COAST AMIGA USER'S GROUP, P.O. BOX 2098, MERRITT ISLAND, FL 32952
SPACE COAST APPLE USER'S GROUP, P.O. BOX 2112, MERRITT ISLAND, FL 32952-2112
SPACECOAST MICROCOMPUTER, 315 INLET AVE., MERRITT ISLAND, FL 32952
SPACECOAST NEC USERS GROUP, C/O FRANK SCHNEIDER, 70 CEDAR AVE.,UNIT #1, COCOA BCH, FL 32931
SPACE COAST AMIGA GROUP, P.O. BOX 1967, MERRITT ISLAND, FL 32952; (305) 452-4737
SPACECOAST APPLE USERS GROUP, INC., P.O. BOX 2112, MERRITT ISLAND, FL 32952-2112
S.T.A.G. (SUNCOAST TAMPA APPLE GROUP), P.O. BOX 291079, TAMPA, FL 33687
SUNCOAST 99'ERS TI USERS CLUB, 6623 12 TERRACE N., ST. PETERSBURG, FL 33710
SUNCOAST APPLE USERS GROUP, P.O. BOX 7488, CLEARWATER, FL 33518, (813)531-7190
S.W.A.C.K.S., RT 2, BOX 607, N. FT. MYERS, FL 33903
TALLAHASSEE AMATEUR COMP SOCIETY, P.O. BOX 6716, TALLAHASSEE, FL 32314
TAMPA BAY AREA ATARI COMPUTER USERS GROUP, C/O RANDAL C. GIBSON, 812 W. RIVER DRIVE, TAMPA, FL 33617; (813) 988-4503
TAMPA BAY COMMODORE CLUB, P.O. BOX 23952, TAMPA, FL 33623
TAMPA BAY KAYPRO USERS GROUP, 14 CYPRESS DRIVE, PALM HARBOR, FL 33563
TAMPA BAY OSBORNE GROUPO, 4455 DUHME ROAD #203, ST. PETERSBURG, FL 33708; (813) 392-6169
TAMPA BAY TI 99ER USERS GROUP, 13097 LOIS AVENUE, SEMINOLE, FL 33542
TAMPA BAY TRS-80 USERS GROUP, P.O. BOX 76001, ST. PETERSBURG, FL 33734
TELE COMM PRO GROUP OF SOUTH FLORIDA, 1140 ATKINSON AVE., FT. LAUDERDALE, FL 33312; (305) 791-5109
TI 99/4A, P.O. BOX 1119, DAVENPORT, FL 33837
TI PROGRAMMABLE CALCULATOR CLUB, TI PPC NOTES, P.O. BOX 1421, ARGO, FL 34294-1421
TI SPACE COAST 99ERS, P.O. BOX 35, MERRITT ISLAND, FL 32952
TIMEX SINCLAIR BAY AREA MICROCOMPUTER USERS GROUP, P.O. BOX 644, SAFETY HARBOR, FL 33572
TIMEX-SINCLARI COMPUTER CLUB OF CENTRAL FLORIDA, 808 EAST ANDERSON STREET, ORLANDO, FL 32801
TRI-COUNTY COMMODORE USERS GROUPD, P.O. BOX 1151, OCALA, FL 32678
TRI-COUNTY COMPUTER USERS GROUP, 2 DON QUIXOTE COURT, PORT ST. LUCIE, FL 33452
T/S TECHNOLOGIES USER GROUP, C/O JOSE MORENO, 11331 SW 4TH STREET, MIMI, FL 33165
U.S.F. IBM PC USERS GROUP, SVS 409 UNIVERSITY OF SOUTH FLORIDA, 4202 E. FOWLER AVE., TAMPA, FL 33620
UKALOOSA COMP BLB, 156 N. ELGIN, FT. W. BCH, FL 32548
VIC-20 COMPUTER CLUB, C/O RAY THIGPEN, 4071 EDGEWATER DRIVE, ORLANDO, FL 32804
WANG USERS 'ROUND TAMPA, C/O LYNNE LAWSAON AT DUVALL/BIBB, INC., 200 N. WESTSHORE BLVD., TAMPA FL 33609
WEST BROWARD ATARI USERS GROUP, 9411 NW 10TH STREET, JACARANDA LAKES, FL 33322
WEST VAX 99ers, BOX 176, ORANGE PARK, FL 32067
Z-HUG OF FORT PIERCE, 800 VIRGINIA AVE., SUITE 4, FT. PIERCE, FL 33450
Z-X TIMEX GROUP, 950 CYNTHIA DRIVE, TITUSVILLE, FL 32780

GEORGIA

ACS, P.O. BOX 888771, ATLANTA, GA 30305
ADBUS, ATLANTA DATA BASE USER SOCIETY, P.O. BOX 19913, ATLANTA, GA 30325
THE AGUSTA SANYO USERS GROUP, c/o JACK E. HOBBS, PRESIDENT, 3008 CLAUDIA DRIVE, AUGUSTA, GA 30906; (404) 793-3406
AMIGA USER GROUP OF STATESBORO, C/O DR. RUSSELL A. DEWEY, 223 N. EDGEWOOD DRIVE, STATESBORO, GA 30458
ATHENS COMMODORE ENTHUSIASTS (ACE), C/O STANTON ROBERTSON, 130 ST. JAMES DRIVE, ATHENS, GA 30606
ATLANTA 99/4A USERS GROUP, P.O. BOX 19841, ATLANTA, GA 30325
ATLANTA AREA APPLE USERS GROUP, LILBURN MIDDLE SCHOOL, 4994 LAWRENCEVILLE HIGHWAY, LILBURN, GA 30247; (404) 662-6957
ATLANTA C-64 USERS GROUP, 1767 BIG VALLEY LANE, STONE MOUNTAIN, GA 30083
ATLANTA COMPUTER SOCIETY, P.O. BOX 888771, ATLANTA, GA 30356
ATLANTA COMPUTER SOCIETY ATARI SIG, 156 LEARNER COURT, MARIETTA, GA 30060
ATLANTA CONTACT ATARI GROUP, C/O N. CRANE, 779 ROLLINGWOOD DRIVE, STONE MT., GA 30087
THE ATLANTA NORTHSTAR USER'S GROUP, P.O. BOX 98397, ATLANTA, GA 30359
C-64 USER GROUP, ALBANY, GA, 912-436-1950
COLUMBUS 99/4A USERS GROUP, 3735 ARREL DRIVE, COLUMBUS, GA 31909
COMMIES EAST (COMMODORE 128/64), C/O NED BOND IV, RT. 4, BOX 430-E, WAYCROSS, GA 31501
CSRA COMPUTER SOCIETY, P.O. BOX 284, AUGUSTA, GA 30903
MGHUG, P.O. BOX 92,WARNER ROBINS, GA 31093
NEVADA COBAL USERS GROUP, 5536 COLBERT TRAIL, NORCROSS, GA 30092
POLY USERS GROUP, 1437 SUGARWOOD LN., NORCROSS, GA 30093
RAINBOW (ATARI), 5916 BEVERLY STREET, SAVANNAH, GA 31405
SAVANNAH COMP USERS GROUP, P.O. BOX 14364, SAVANNAH, GA 31404
SIVIC-9000, 362 PEACHTREE AVENUE, ATLANTA, GA 30305
STATESBORO TRS-80 USERS GROUP, C/O DR. RUSSELL A. DEWEY, 223 N. EDGEWOOD DR., STATESBORO, GA 30458
TRS-80 USER'S GROUP OF ATLANTA, 1637 COLUMBIA DR., DECATUR, GA 30034

HAWAII

68XX USERS GROUP, P.O. BOX 30107, HONOLULU, HI 96820
ALOHA 99/4A USERS GROUP, C/O PHILLIP MARKHAM 92865 PALAILAI ST., MAKAKILO, HI 96706
CHAMINADE UNIVERSITY COMPUTER WORKSHOP, 3140 WAIALAE AVE., HONOLULU, HI 96861
HAWAII PORTABLE COMPUTER USERS GROUP, C/O COMPUTER MARKET, HECTOR ROBERTSON, PRES., 578 ALA MOANA BLVD., HONOLULU, HI 96813
HONOLULU APPLE USERS SOCIETY, P.O. BOX 91, HONOLULU, HI 96810
NEC USERS GROUP, 94-1026 LELEPUA PLACE, WAIPAHU, HI 96797

IDAHO

THE COMPUTER USERS GROUP OF MAGIC VALLEY, BOX 1735, TWIN FALLS, ID 83303
G.H.S. COMPUTER CLUB, GRANGEVILLE HIGH SCHOOL, GRANGEVILLE, ID 83530
IDAHO FALLS COMPUTER CLUB, 1890 EAST 25TH, IDAHO FALLS, ID 83401
IDAHO TANDY USERS GROUP, C/O KEITH E. DAVIS, P.O. BOX 609, SHOSHONE, ID 83352; (208) 886-2990
POCATELLO COMMODORE USERS, C/O RICHARD HARKER, 421 S. MAIN, POCATELLO, ID 83204
POCATELLO MICROCOMPUTER CLUB, 361 PARK WAY DR., POCATELLO, ID 83201
POCATELLO ORGANIZATION OF WRITERS IN LOGO (O.W.L.), C/O WILLIAM J. McCURDY, 2946 S. 5TH AVE., POCATELLO, ID 83204. 208-233-5422
POCATELLO TI 99ERS USERS GROUP, c/o T.S. TAUSCHER, 4990 WILDFLOWER, POCATELLO, ID 83204; (208) 233-2282
SANYO GROUP, SHERWOOD HALL, 404 SPOTSWOOD, MOSCOW, ID 83843

ILLINOIS

THE 64 USER GROUP OF AMERICA, 51 THORNHILL DRIVE, DANVILLE, IL 61832
99/4A OWNER USERS GROUP, 8602 DORR RD., WONDER LAKE, IL 60097
APPLE PEOPLE USERS GROUP, P.O. BOX 333, CRYSTAL LAKE, IL 60014
APPLE TREE COMPUTER CLUB, 1544 EDGEWOOD, CHICAGO HEIGHTS, IL 60411
THE C-64 USERS GROUP, INC., C/O DARRELL HANCOCK & DAVID TAMKIN, P.O. BOX 46464, LINCOLNWOOD, IL 60646
CACHE, CHICAGO AREA COMPUTER HOBBYIST EXCHANGE, 323 S. FRANKLIN #804, BOX C-176, CHICAGO, IL 60606
CENTRAL ILLINOIS TRS-80 USER GROUP, MODELS I/III/IV/4P, 159 MOSCHEL STREET, EAST PEORIA, IL 61611-2722
CHESS PLAYER'S COMMODORE USER GROUP, 723 BARTON STREET, MT. VERNON, IL 62864
CHICAGO AREA NORTHSTAR USERS GROUP, P.O. BOX 9, PARK RIDGE, IL 60068
CHICAGO AREA PC JR USER GROUP, P.O. BOX 106, GLENVIEW, IL 60025-0106; (312) 837-5711
CHICAGO AREA TIMEX USES GROUP, 210 BERNICE, NORTHLAKE, IL 60164; (312) 473-9415
CHICAGO AREA T-BUG, TANDY BUSINESS USERS GROUP, 26940 N. LONGWOOD RD., P.O. BOX 631, LAKE FOREST, IL 60045
CHICAGO'S FIRST OSBORNE GROUP, BOX 1678, CHICAGO, IL 60690
CHICAGO TI99/4A USERS GROUP, TRITON COLLEGE, RIVER GROVE, IL
CHICAGOLAND ATARI USERS GROUP, 2952 N. MEADE, CHICAGO, IL 60634
CHICAGOLAND KAYPRO USERS GROUP, 605 ILLINOIS RD., WILMETTE, IL 60091
CIA USERS GROUP, P.O. BOX 1462, PEORIA, IL 61602
CIRCLE CHESSCOMPUTER CLUB, P.O. BOX 63, DES PLAINES, IL 60017
COMMODORE B-128 USER'S GROUP, c/o NORMAN DELTZKE, 4102 N. ODELL, NORRIDGE, IL 60634
COMPUTERS-WEST, 440 NORTH STEWART, LOMBARD, IL 60148
CRABAPPLES USER GROUP, P.O. BOX 338, CARBONDALE, IL 62903
DCN/DENTAL COMPUTER GROUP, C/O E.J. NEIBURGER, 1000 NORTH AVE., WAUKEGAN, IL 60085
EXPLORATIONS EXPLORER-85 S-100, C/O LEROY W. MARSHALL, 808 VASSAR LANE, SCHAUMBURG, IL 60193
FOX VALLEY COMMODORE USERS GROUP, C/O HERB GROSS, 833 PROSPECT, ELGIN, IL, 60120
FOX VALLEY TRS-80 USER GROUP, 129 S. LINCCLN WAY, N. AURORA, IL 60542
FOX VALLEY PCjr ASSOCIATION, P.O. BOX 294, PLAINFIELD, IL 60544
HEURISTICS USER GROUP P.O. BOX 481, CRYSTAL LAKE, IL 60014
IBM PC/C-64 COMPUTER CLUB, P.O. BOX 513, CHICAGO, IL 60690
ICCC ATARI USERS GROUP, 117 SOUTH 17th, MATTOON, IL 61938
ILLIANA ACE ATARI COMPUTER ENTHUSIASTS, 3816 PERSHING, DANVILLE, IL 61832
ILLINOIS COLOR COMPUTER CLUB OF ELGIN, 720 RAYMOND STREET, ELGIN, IL
JOLIET APPLE USERS GROUP, 101 SPRINGFIELD AVE., JOLIET, IL
K * 3 USERS GROUP, RT. 2, BOX 203, MOMENCE, IL 60954
LITTLE EGYPT APPLE USERS GROUP, 2130 LOGAN STREET, MURPHYSBORO, IL 62966
MACH, P.O. BOX 221, VARNA, IL 61375; (309) 463-2557
METRO EAST COMPUTER ASSOCIATION, c/o D. WARREN, P.O. BOX 1569, EDWARDSVILLE, IL 62024
MID ILLINOIS APPLE USERS GROUP, P.O. BOX 526, EFFINGHAM, IL 62401
MID ILLINOIS COMP. RESOURCE ORGANIZATION, P.O. BOX 766, BLOOMINGTON, IL 6
MID ILLINOIS COMP. RESOURCE ORGANIZATION, P.O. BOX 766, BLOOMINGTON, IL 61701
MPTUG, PASCAL/MT USERS GROUOP, P.O. BOX 192 EST MONT, IL 60559
NATIONSERV USERS GROUP, P.O. BOX 391, FAIRFIELD, IL 62837
NORTHERN ILLINOIS APPLE USERS GROUP, 1271 WEST DUNDEE ROAD, BUFFALO GROVE, IL 60090
NORTHERN ILLINOIS COLOR COMPUTER CLUB, 1217 KINGS COURT #12, WEST CHICAGO, IL 60185
NORTHERN ILLINOIS COMPUTER OWNERS, 26 W. 484 BUTTERSFIELD, WHEATON, IL 60187
NORTHERN ILLINOIS IBM-PC USERS GROUP, UNION OIL BUILDING, SCHAUMBERG, IL
NORTHWESTERN UNIVERSITY APPLE USERS GROUP, C/O JILL MILETTE, DEP, N&P, HOGAN HALL, EVANSTON, IL 60201
ONE ON ONE, 948 PROSPECT AVENUE, ELMHURST, IL 60126
PEORIA ATARI COMPUTER ENTHUSIASTS, P.O. BXO 32, WASHINGTON, IL 61571
PROGRESSIVE ATARI COMPUTER, (P.A.C. USER GROUP), c/o NETWORK: ATARI, P.O. BOX 196, RANTOL, IL 61866-0196
PUBLIC ACCESS MICROCOMPUTER USERS GROUP, ARLINGTON HEIGHTS MEMORIAL LIBRARY, 500 NORTH DUNTON ARLINGTON HGTS, IL 60004
S.U.N., SINCLAIR USERS NETWORK, 2170 OAK BROOK CIRCLE, PALATINE, IL 60607
SANYO USERS GROUP (SMUG), C/O RUSS STAKER, COORDINATOR, 2001 HIGHWOOD, PEKIN, IL 61554; (309) 346-1906
SINCLAIR END USERS' GROUP, C/O DIANA WRIGHT, 2170 OAKBROOK CIRCLE, PALATINE, IL 60607
SOSUG-COMMODORE 64, C/O MACEY B. MCKEE, WESL INSTITUTE, WESTERN ILLINOIS UNIVERSITY, MACOMB, IL 61455
SOUTH SUBURBAN MICROCOMPUTER USER GROUP, P.O. BOX 2, PARK FOREST, IL 60466
SOUTHERN ILLINOIS CRAB APPLES USERS GROUP, 2130 LOGAN STREET, MURPHYSBORO, IL 62966
TANDY RADIO SHACK COMPUTER USERS SIG 80 GROUP, 6270 PALMA LANE, MORTON GROVE, IL 60053
UNION PIRATES, BOX 566, GRANVILLE, IL 61326
WACO, (WOODFIELD AREA COMPUTERIST'S ORGANIZATION), QUINLAN & TYSON BLDG. SCHAUMBURG, IL 60194
WAUKEGAN APPLE USERS GROUP, C/O CURT ROSTENBACH, P.O. BOX 8757, WAUKEGAN, IL 60079
WILL COUNTY COMPUTER USERS, LOCKPORT LIBRARY, 8TH & HAMILTON, LOCKPORT, IL
WIPUG C/O EDWARD L. MILLS, RTE 5 BOX 75, QUINCY, IL 62301
W.W. 99ERS, (T.I. 99/4A USERS GROUP), c/o MARC C. LEVINE, PRESIDENT, 1901 SUMMIT DRIVE, URBANA, IL 61801
Z80 STARTER KIT USER'S GROUP, 6000 PUFFER ROAD, DOWNERS GROVE, IL 60516

INDIANA

APPLE PICKER'S INC., P.O. BOX 20136, INDIANAPOLIS, IN 46220; (317) 923-5825 or (317) 872-2347
CAUG, CHARLES HATCHER, 2805 CHESTNUT CT., COLUMBUS, IN 47201
THE CENTER COMPUTER ORGANIZATION, PO BOX 6031, SOUTH BEND, IN 46660-6031
CO*CO*M*U*G OF INDIANA, C/O JOHN R. STRONG, BOX 361, MATTHEWS, IN 46957
COMMODORE COMPUTER CLUB, 3814 TERRA TRACE, EVANSVILLE, IN 47711. C/O JOHN PATRICK
ELKHART PC USER GROUP, 59312 PARK SHORE DRIVE, ELKHART, IN 46517
EVANSVILLE COLOR COMPUTER USERS GROUP, C/O DAVE JENKINS, 1418 E. ILLINOIS ST., EVANSVILLE, IN 47711, (812) 424-0099
EVANSVILLE COMPUTER CLUB, PO BOX 3284, EVANSVILLE, IN 47732
FORT WAYNE APPLE COMPUTER USES GROUP, PO BOX 11507, FORT WAYNE, IN 46858
FORT WAYNE AREA COMMODORE CLUB, BOX 13107, FORT WAYNE, IN 46807
THE FORT'S USERS GROUP, P.O. BOX 11212, FT. WAYNE, IN 46856-1212
GROUP-I/OSBORNE & OTHER PORTABLES, P.O. BOX 205, BEECH GROVE, IN 46107
HOOSIERS USERS GROUP (HUGers) P.O. BOX 2222, Indianapolis, IN 46206-2222
INDIANA HEATH USERS GROUP, 5113 DICKSON RD., INDIANAPOLIS, IN 46226
INDIANA OSBORNE USERS, 317 NORTH FESS, BLOOMINGTON, IN 47401 812-339-4754
INDIANAPOLIS SMALL SYSTEMS GROUP, PO BOX 40733, INDIANAPOLIS, IN 46240
INDY ST COMPUTER CLUB, BOX 2525, INDIANAPOLIS, IN 46206; (317) 898-9856
KOKOMO APPLE USERS GROUP, 611 S. WEBSTER ST., KOKOMO, IN 46901
KOSCIUSKO COMMODORE USERS, R.R. 1, BOX 53, WARSAW, IN 46580
LAUG - LAYFAYETTE APPLE USERS GROUP, 519 SOUTH 31st ST., LAFAYETTE, IN 47904
LOGANSPORT COMMODORE CLUB, 24 E. MIAMI AVENUE, LOGANSPORT, IN 46947 (219) 753-9353
MC-10 USERS GROUP, BOX 103, OWENSVILLE, IN 47665
MACINTOSH SUPPORT GROUP, 112 S. MAIN STREET, KOKOMO, IN 46901, (317) 457-5571
MARION APPLE COMPUTER CLUB, C/O COMPUTER DEPT., JONES MIDDLE SCHOOL, MARION, IN 46952
MIAMI COUNTY AREA 99/4A HOME COMPUTER USERS GROUP, PO BOX 1194, PERU, IN 46970
THE MICHIANA 99/4A UG, 2417 CREST AVENUE, SOUTH BEND, INDIANA 46614
THE MICHIANA 99/4A USER'S GROUP, 911 DOVER DRIVE, SOUT BEND, IN 46614
MUNCIE PC USERS GROUP, 2809 E. JACKSON ST., MUNCIE, IN 47303
THE NORTH EASTERN INDIANA IBM-PC CLUB, 4422 BRIDGETOWN RUN, FORT WAYNE, IN 46884-4889
NORTHEAST COMPUTER CLUB, PO BOX 50252, INDIANAPOLIS, IN 46250
NORTHEASTERN INDIANA KAYPRO AND CP/M USERS GROUP, 3008 N. ANTHONY BLVD., FORT WAYNE, IN 46805; (219) 483-5109
QDP, P.O. BOX 271, HUNTINGTON, IN 46750
SOUTHERN INDIANA APPLE USERS GROUP, 5900 TWICKINGHAM DR., EVANSVILLE, IN 47711
SOUTHERN INDIANA COMPUTER CLUB, RT. 1, BOX 459, MITCHELL, IN 47446
TERRE HAUTE KAYPRO USERS GROUP, P.O. BOX 4, TERRE HAUTE, IN 47808
TIMEX 1000 NATIONAL SOFTWARE EXCHANGE, C/O GREG GUNTHORP, RR2 BOX 162, LaGRANGE, IN 46761
VALPO 99/4A USERS GROUP, C/O DANNY CRNCEVIC, 131 WHEATRIDGE ROAD, VALPARAISO, IN 46383
WVAU (WABASH VALLEY ATARI USERS), RR 16, BOX 449A, BRAZIL, IN 47834

IOWA

AMES IOWA APPLE USERS GROUP, 213 LINCOLN WAY, AMES, IOWA 50010
APPLE S.E.E.D. P.O. BOX 1281, MARSHALLTOWN, IA 50158
BLACKHAWK ATARI COMPUTER ENTHUSIASTS, 220 SHERMAN, WATERLOO, IA 50703
CEDAR VALLEY 99ER USERS GROUP288 WINDSOR DRIVE, CEDAR RAPIDS, IA 52402
CENTRAL IOWA 99/4A USERS GROUP, P.O. BOX 3043, DES MOINES, IO 50316
COMMODORE COMPUTER USERS GROUP OF IOWA, P.O. BOX 3140, DES MOINES, IA 50316
COMMODORE USERS GROUP OF CLINTON, BOX 743, CLINTON, IA 52732
COMPUTER USERS CLUB, 1101 S. 2ND AVE., MARSHALLTOWN, IA 50158
CRAWFORD COUNTY COMMODORE USER GROUP, C/O KENNETH HAYDON, 519 N. 19TH STREET, DENISON, IA 51442
FT. MADISON COMPUTER CLUB, c/O JAMES LAIR, R.R. #1, BOX 390, FORT MADISON, IOWA 52627
GREEN ACRES COMPUTER CLUB, RR3, BOX 126, AFTON, IA 50830
THE GREEN APPLES, BOX 622, CEDAR FALLS, IA 50613
HAEKATARI, 302 1ST AVENUE, ATKINS, IA 52206
HAWKEYE - PC, IBM PC USERS GROUP, 385 COLLINS RD. N.E. SUITE 201, CEDAR RAPIDS, IA 52404
IOWA CITY TRS-80 USERS GROUP, C/O JOHN GREEN, P.O. BOX 1494, IOWA CITY, IA 52244
IOWA USER GROUP, 844 10 ST. N.E., MASON CITY, IA 50401
MIDWEST ATARI GROUP, IOWA CHAPTER (MAGIC), 1125 3RD ST., NEVADA, IA 50201
NORTHEAST IOWA HOME COMPUTER USERS GROUP (N.I.H.U.G.), 804 OLIVE STREET, CEDAR FALLS, IO 50613
QUAD CITY COMPUTER CLUB, BOX 3994, DAVENPORT, IA 52808
TEXAS INSTRUMENT USERS GROUP, BERNARD Y. TAO, DEPT. OF CHEMICAL ENGINEERING, IOWA STATE UNIVERSITY, AMES, IA 50011, (515) 294-1784
WATERLOO AREA COMMODORE CLUB, PRESIDENT (RICK) FRED VOLKER, 945 LOWELL, WATERLOO, IA 50702; 319-232-1062

KANSAS

APPLE BITS, P.O. BOX 368, MISSION, KS 66201
THE C USERS' GROUP (INTERNATIONAL), P.O. BOX 97, MCPHERSON, KS 67460 (316) 241-1065
COMMODORE USERS GROUP OF WICHITA, ROUTE 1, BOX 115, VIOLA, KS 67149
FORT LEAVENWORTH ATARI GROUP, P.O. BOX 3233, FORT LEAVENWORTH, KS 66027-0233
INTEREST GROUP, 5522 EAST HARRY, WICHITA, KS 67218
KANSAS CITY METRO USER'S GROUP, 7010 CAENEN AVENUE, SHAWNEE, KS 66216
MID/AMERICA 99 USERS GROUP, PO BOX 2505, SHAWNEE, KS 66201
THE PLANE APPLE CLUB, PO BOX 47396, WICHITA, KS 67201
SANYO*WICHITA (SANWICH), P.O. BOX 621, DERBY, KS 67037; (316) 682-7998
WICHITA APPLE CLUB, P.O. BOX 4587, WICHITA, KS 67204-0587
WICHITA ATARI COMPUTER ENTHUSIASTS (WACE), C/O ED BOWLES, 4001 CESSNA DR., WICHITA, KS 67210

KENTUCKY

APPLE SIDERS OF CINCINNATI, C/O GARY JOHNSTON, PRESIDENT, 27 CRYSTAL LAKE DR., COVINGTON, KY 41017
ATARI EXCHANGE OF LOUISVILLE, P.O. BOX 34183, LOUISVILLE, KY 40223
BLUEGRASS 99/4 COMPUTER SOCIETY, P.O. BOX 11866, LEXINGTON, KY 40578-1866
BULLION APPLE CORPS., C/O TOM HOLDER, 7537-B McCRACKEN ST., FORT KNOX, KY 40121
C*BUG THE COMMODORE BARDSTWON USER GROUP, PO BOX 165, BARDSTOWN, KY 40004, 502-348-6380
COLOR COMPUTER OF LEXINGTON, C/O SCOTT SEHLHORST, 3401 TISDALE DR., LEXINGTON, KY 40503
THE COMMODORE CONNECTION, C/O JIM KEMP, 1010 S. ELM, HENDERSON, KY 42420
COMMODORE USER'S GROUP OF CENTRAL KENTUCKY, c/o LARRY OWENS, 115 SUMMERTREE DR., NICHOLASVILLE, KY 40356
COMMODORE USERS GROUP OF MADISONVILLE (C.U.G.O.M.), C/O RICHARD BYRD, P.O. BOX 849, MADISONVILLE, KY 42431
H.A.C.K., P.O. BOX 417, HARDINSBURG, KY 40143
KENTUCKIANA 99/4 COMPUTER SOCIETY, P.O. BOX 36246, LOUISVILLE, KY 40222
KENTUCKY AREA SANYO SOCIETY, RT #1, BOX 859, LEWISPORT, KY 42351
KENTUCKY OSBORNE GROUP, C/O JOHN WARNER, PRES., 219 BURNAM CT., RICHMOND, KY 40475
KIPCUG, PO BOX 3564, LOUISVILLE, KY 40201, PRES., ROBERT D. HASTINGS (502)589-0254
L.A.U.G.H. LOUISVILLE APPLE USERS GROUP, INC., P.O. BOX 6476, LOUISVILLE, KY 40207-0476
L.U.C.K.Y. (LOUISVILLE USERS OF COMMODORE IN KENTUCKY), C/O DAVE BOROUGHS, PO BOX 22244, LOUSIVILLE, KY 40222
OHIO VALLEY IBM PC USERS GROUP, 830 PARKWAY DRIVE, OWENSBORO, KY 42301
OK-SANYO, 2395 S. MAIN STREET, HIGHLAND HEIGHTS, KY 41076
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PORTSMOUTH T/S USERS GROUP, C/O JOHN MARION, HC 63 BOX 650, GREENUP, KY 41144 (606)473-6791
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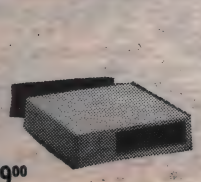

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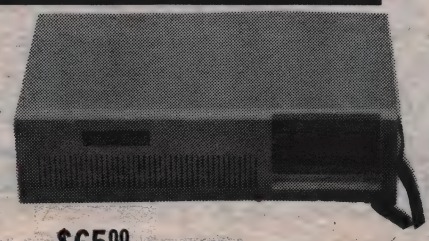

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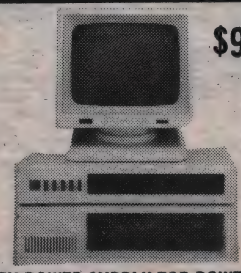

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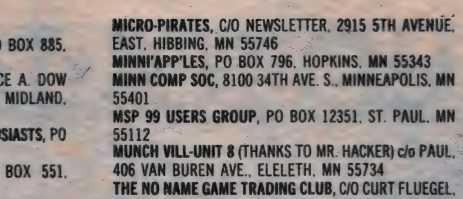

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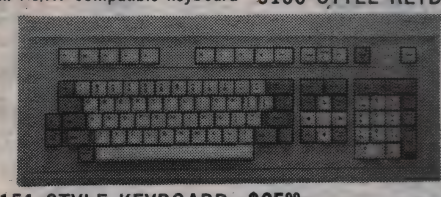

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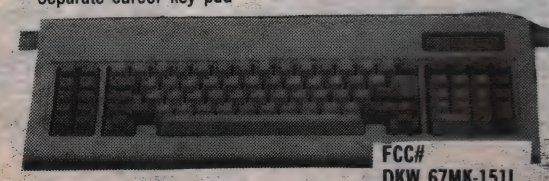

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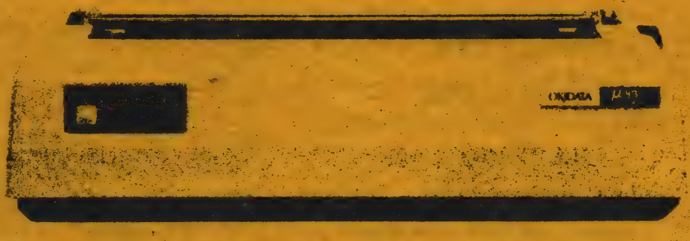

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DR. DECIBLE 204-832-3820; C-64 *24
EXCHANGE 204-255-1991; Apple *24
FIDONET 204-783-5013; Slicer *24
GENERIC BBS 204-475-5199; C-64 *24
GENERIC II 204-475-3228; Mac *24
HARD ROCK CAFE 204-885-3728; C-64 *24
HYPER-LINK 204-889-9560; TRS-80 *24
INFO-NET 204-669-5454; Apple *24
IRON BOARD 204-832-5348; C-64 *24
J&J'S 204-942-1109; TRS-80 *24
KORTEX RBBS 204-947-6821; IBM; NON-BUSS.
LATE NIGHT... 204-832-6694; C-64 *24
LITTER BOX 204-668-3995; Apple *24
M.A.C.C. 204-774-2231; Atari *24
M.A.U.B. 204-885-5798; Mac *24
M.W.O.G. 204-452-5529; Osborne *24
MASTERMIND 204-222-6902; C-64 *24
MICRO-MART 204-589-4742; Amiga *24
MILLIWAYS 204-256-8883; CoCo; 10pm-4pm
PRICE IS RIGHT 204-837-5933; C-64 *24
REALM BBS 204-233-8337; C-64 *24
REALM OF THE CLAM 204-832-1221; C-64 *24
ROACH MOTEL 204-253-9898; C-64 *24
ROM ELEC. CATA. 204-888-0498; IBM; 7pm-12pm
SCHOOL NET 204-889-3584; Apple *24
SILICONE VALLEY 204-888-4320; C-64 *24
SMORGAS BOARD 204-889-1432; TI-99/4A *24
SOFTWARE DIM. 204-586-6714; C-64 *24
T.A.B.B.S. 204-885-7020; Atari *24
TELETRAN ONE 204-661-8624; C-64 *24
TITAN'S 204-589-2239; Atari *24
TRONICA (T.I.N.) 204-943-8517; IBM *24
T.V.C.S. 204-885-7921; TRS-80 *24
TWILIGHT ZONE 204-837-9498; VIC.9000 *24
U.S.S. ENTERPRISE 204-895-3298; Apple *24
UNSOUND MIND 204-837-9044; C-64 *24
W.A.U.G. 204-661-8337; Apple *24
WIZARD'S DEN 204-261-9040; Apple; Nights
ZANZABAR HOTEL 204-837-4078; C-64 *24

(T)HE (A)PPLE (G)ROUP Auburn. AL 205-826-6053
The BULLETIN BOARD Tuscaloosa. AL 205-758-5017 Monday. Wednesday. Friday. Saturday. Sunday 8pm-7am
FORUM-80 Montgomery. AL. 205-272-5069
MONTG. PCUG RBBS, Montgomery. AL 205-264-2278; 2400 baud; 5pm-8am; *24 weekends
RCP/M RBBS Huntsville. AL 205-895-6749
TRANS WORLD ATARI, Ozark. AL 205-774-8464; 1200/300 baud *24

ABYSS, Kirkland. WA 206-827-9063; Apple; 300 BAUD
ACCESS NORTHWEST, Vancouver. WA 206-573-7006; IBM; 300/1200/2400 BAUD
ACTION ANNEX, WA 206-892-8969; Atari; 300/1200 BAUD
ALKI EXPRESS, Seattle. WA 206-937-5800; C64; 300 BAUD
ANNEXIAN, Seattle. WA 206-282-9694; C128; 300 BAUD
A.P.P.L.E. CRATE I, Kent. WA 206-872-6789; Apple; 300/1200 BAUD
A.P.P.L.E. CRATE I, (Alternate #) Renton. WA 206-251-0543; Apple; 300/1200 BAUD
A.P.P.L.E. CRATE II, Seattle. WA 206-525-5410; Apple; 300 BAUD; 8pm-8am. *24 on weekends
ARCADIA, Seattle. WA 206-523-6133; C64; 300 BAUD
ARRAKIS, Richmond Beach. WA 206-542-4628; C64; 300 BAUD
A.R.S. (AMATEUR RADIO SUPPLY), Seattle. WA 206-767-3223; C64; 300 BAUD; 6pm-9am
THE ATARI DOGHOUSE, Montesano. WA 206-249-3228
AUTOMAN, Kent. WA 206-854-6336; Atari; 300/1200 BAUD
BACK TO THE FUTURE, Seattle. WA 206-281-8674; 300 BAUD
BADLANDS, WA 206-486-1826; 300/1200 BAUD
BAKER STREET, Kent. WA 206-854-0193; Atari; 300 BAUD
B.A.U.D., WA 206-722-1882; Kaypro; 300/1200 BAUD
BBS AT THE END OF THE UNIVERSE, WA 206-820-1700; Atari; 300 BAUD
BELLEVUE ROS, Bellevue. WA 206-641-4521; Kaypro; 300/1200 BAUD
BLACK MARIAH, Bellevue. WA 206-641-5833; C64; 300 BAUD
BOGUS ZONE, Auburn. WA 206-939-6143; Atari; 300 BAUD; 10pm-6am
BOILER ROOM, Everett. WA 206-347-1008; Atari; 300/1200 BAUD
BONGOLAND, Kent. WA 206-852-8588; 300/1200 BAUD
BRACE BBS, WA 206-644-1144; Atari; 300 BAUD
BUDGET BOARD, Renton. WA 206-271-8613; Atari; 300 BAUD
BUFFALOE BILL'S, Seattle. WA 206-241-5672; Atari; 300/1200 BAUD
CADDY SHACK, Seattle. WA 206-932-8912; C128; 300 BAUD; Closed Sun. to 10
CAMELOT, Bothell. WA 206-487-1992; Atari; 300/1200 BAUD
CAMP CRYSTAL LAKE, Renton. WA 206-271-2211; C64; 300/1200 BAUD
CARTEL, Kent. WA 206-825-3420; LD; 300 BAUD
CBBS/BECS, Renton. WA 206-235-9496; SBC-200; 300/1200 BAUD
CBBS/PUGET SOUND, Kent. WA 206-630-5229; SOL; 300/1200 BAUD
CHALLENGER 51-L, Kirkland. WA 206-827-0346; TRS-1; 300/1200 BAUD
CHAMELEON CIRCUIT, Everson. WA 206-966-4855; Apple; 300/1200 BAUD; 10pm-7:30am
COLOSSUS: DATA DISCOUNT SERVICE, Mercerls. WA 206-236-2566; Compaq; 300/1200 BAUD
COM-SOFT, Everett. WA 206-337-2144; C64; 300 BAUD
COM-SOFT, (Alternate #) Lynnwood. WA 206-742-8422; 300 BAUD
COMMODORE USER GROUP (CUG), Lynnwood. WA 206-743-6021; C64; 300/1200 BAUD
COMMODORE USER GROUP EAST & SOUTH, Seattle. WA 206-364-6497; 300/1200 BAUD
COMPASS, Seattle. WA 206-523-2530; C64; 206-523-2530; 300 BAUD
COMPUTECH INFORMATION SERVICE, Tacoma. WA 206-759-4391; LD; 300 BAUD
COMPUTER EXCHANGE, Seattle. WA 206-431-8664; TRS-1; 300/1200 BAUD
DELTA HOUSE, WA 206-232-1155; Atari
DIAL-YOUR-MATCH -47 Redondo. WA 206-839-3415
DIAL-YOUR-MATCH -220 Kirkland. WA 206-823-5679
DIANE'S PLACE, Bellevue. WA 206-643-9129; C64; 300 BAUD
DOCTOR'S REALM, Seattle. WA 206-364-6268; Atari; 300 BAUD; 8pm-8am
DOSFILE XL, Seattle. WA 206-367-3453; Atari; 300/1200 BAUD
DOWNSPOUT, Seattle. WA 206-325-1325; Epson; 300/1200/2400 BAUD
DRAGON'S CAVERNS, Richmond Beach. WA 206-542-2757; Atari; 300 BAUD; 10:30pm-8am
ELECTRONIC ANTIOCH, WA 206-443-0629; Apple; 300 BAUD; 8pm-8am weekdays. *24 weekend
ESKIMO NORTH/POLYNET, Seattle. WA 206-367-3837; TRS-16; 300/1200 BAUD
ESP, WA 206-885-1722; C64; 300/1200 BAUD; 10pm-6:30am
EVENT HORIZON, Issaqua. WA 206-392-5829; C64; 300 BAUD; 9:30am-5:30am
FIDO: BECS TANDY, Seattle. WA 206-527-5618; Tandy 1200; 300/1200 BAUD
FIDO: DATA JOCKEY, Bellevue. WA 206-643-0909; IBM PC; 300/1200 BAUD; 7pm-6am
FIDO: EMERALD CITY, Bothell. WA 206-481-6549; Amer XT; 300/1200 BAUD; 6pm-10am
FIDO: HEATH/ZENITH, DesMoines. WA 206-941-6943; IBM PC; 300/1200 BAUD
FIDO: PTC-NET, Burlington. WA 206-757-5233; 300/1200/2400 BAUD; 5pm-7am; *24 weekends
FIDO: TROUBLE SHOOTER, WA 206-922-0106; Sanyo; 300/1200/2400 BAUD
FIDO: UNDER THE RAINBOW, Bothell. WA 206-485-5320; DEC Rnbw; 300/1200 BAUD; 4:30pm-10pm
FIDO: WATER SHED, WA 206-878-1941; AT&T 6300; 300/1200 BAUD
FOUNDATION AND EMPIRE, Seattle. WA 206-323-1330; Atari; 300/1200 BAUD
FPS TECH-BOARD, Tacoma. WA 206-565-9465; 300/1200 BAUD
FRENCH CONNECTION, Lynnwood. WA 206-775-4447; TRS 2; 300/1200 BAUD
GALACTIC UNIVERSITY, Seattle. WA 206-431-0557; Atari; 300 BAUD
GAS-XE, Lynnwood. WA 206-745-4077; Atari; 300/1200 BAUD
GATEWAY, Silverdal. WA 206-698-1388; LD; 300/1200 BAUD
GNOMES GNOLL, Everett. WA 206-334-0223; LD
GREAT WHITE NORTH, WA 206-828-9453; Atari; 300 BAUD
HAM NET & ELECTRONICS, Seattle. WA 206-285-3040; C64; 300 BAUD
HARRY'S HIDEAWAY, Renton. WA 206-226-7506; C64; 300 BAUD; 8pm-7am
HEATH USERS' GROUP PERSONAL BBS, Seattle. WA 206-782-1302; H-101; 300 BAUD; 4pm-7pm; *24 weekends
HI-FI T-ROOM, Seattle. WA 206-723-7437; Apple; 300/1200 BAUD
HYBORIAN AE, Seattle. WA 206-522-2508
I.B.S. SYSTEMS: GIG HARBOR BBS, Gig Harbor. WA 206-858-2028; LD; 300 BAUD
I.B.S. SYSTEMS: OUTER LIMITS BBS, Seattle. WA 206-285-3210; C64; 300 BAUD
I.B.S. SYSTEMS: TECH SYSTEM BBS, Bellevue. WA 206-453-0903; C64; 300 BAUD; 10pm-7am
INFORMATION MANAGEMENT SYSTEMS, Tacoma. WA 206-535-2730; Kaypro; 300/1200 BAUD
INFORMER SYSTEMS, Everett. WA 206-337-4078; C64
INVISIBLE SEATTLE, Seattle. WA 206-784-7685; IBM PC; 300/1200 BAUD
JOB SYSTEM, Bothell. WA 206-487-3290; IBM PC; 300/1200 BAUD
J.R.-XCHANGE, Richmond Beach. WA 206-542-8529; TI99; 300/1200 BAUD
KNOTHEAD'S NOOK, Kent. WA 206-631-8056; Atari; 300/1200 BAUD
LIFE IN HIS WORD, Tacoma. WA 206-472-9331; LD; 300/1200 BAUD
LORDS OF DARKNESS, Bothell. WA 206-485-0665; C64; 300 BAUD
LORDS OF DARKENESS I, Kirkland. WA 206-821-3387; 300 BAUD
MAC CAVERN BBS, Seattle. WA 206-525-5194; Apple; 300 BAUD
MAPLE HILLS, Renton. WA 206-228-7533; C64; 300 BAUD; 6pm-10pm
MEANING OF LIFE, Kirkland. WA 206-827-9063; LD; 300 BAUD
MICRO MAGIC, Sumner. WA 206-863-1713; LD; 300/1200 BAUD
MINIBIN: KZOK/KJET, Seattle. WA 206-281-5656; TRS-3; 300/1200 BAUD; clsd 7am-11am
MINIBIN: ORBITER, Kent. WA 206-631-4381; LNW; 300/1200 BAUD
MINIBIN: ORBITER (FORWARDING -), Seattle. WA 206-932-2858; 300/1200 BAUD
MINIBIN: SATELITE SYSTEM, Seattle. WA 206-762-5141; TRS-1; 300 BAUD
MINIBIN: TRANQUILITY BASE, Seattle. WA 206-525-0497; TRS-3; 300 BAUD
MINIBIN: CHERYL'S VELVET TOUCH, W. Seattle. WA 206-937-2957; LNW; 300 BAUD
MR. ROGER'S NEIGHBORHOOD, Seattle. WA 206-522-8514; C64; 300 BAUD; 8pm-7am
MULTI PHREAKWENCY, WA 206-742-4280; 300 BAUD
MUSHROOM SHOP, Seattle. WA 206-527-8981; C64; 300 BAUD
NIGHTHAWK BBS, Van. WA 206-694-2852 *24
NORTH STAR T-ROOM RCP/M, WA 206-523-5355; 300/1200 BAUD
NORTHWEST CONNECTION, Seattle. WA 206-935-7530; Apple; 300/1200 BAUD
NORTHWEST MICRONET, Tacoma. WA 206-535-2837; LD; 300/1200 BAUD
OLD CHICAGO, DesMoines. WA 206-838-1815; Atari; 300 BAUD
PC BOARD: UNDERDOG, Seattle. WA 206-725-9233; IBM PC; 300/1200/2400 BAUD
PC BOARD: INFINITY BASE, Seattle. WA 206-329-9260; IBM PC; 300/1200/2400 BAUD
PC MATCH, Seattle. WA 206-935-5416; IBM PC; 300/1200 BAUD
PENITENTIARY, Lynnwood. WA 206-742-6942
PERNET BBS, Seattle. WA 206-782-6669; C64; 300 BAUD; 10pm-3pm
POLYNET PUBLIC SYSTEMS dsPPS, Seattle. WA 206-783-9798; Apple; 300/1200 BAUD
POLYNET PUBLIC SYSTEMS gsPPS, Seattle. WA 206-784-9776; Apple; 300/1200 BAUD
POLYNET PUBLIC SYSTEMS lsPPS, Lacy. WA 206-438-4477; Apple. 300/1200 BAUD
POLYNET PUBLIC SYSTEMS rsPPS, Seattle. WA 206-784-3217; Apple; 300/1200 BAUD
POLYNET PUBLIC SYSTEMS tsPPS, Seattle. WA 206-784-3218; Apple. 300/1200 BAUD
POWER HOUSE I, Bellevue. WA 206-453-4074; C64; 300 BAUD
PROTOSOFT, Seattle. WA 206-932-7125; IBM PC; 300/1200 BAUD
PUBLIC DOMAIN SILO, Lynnwood. WA 206-775-2650; C128; 300/1200 BAUD; 6pm-12am
PX, Seattle. WA 206-246-9627; C64; 300 BAUD; 6pm-6am
RBBS-PC: AUBURN, Auburn. WA 206-833-4183; IBM PC; 300/1200 BAUD; 6pm-12pm
RBBS-PC: ELECTRONICS SYSTEM, Renton. WA 206-235-8760; ZF-160; 300/1200 BAUD
RBBS-PC: HEPTITE GUILD, Mape Valley. WA 206-432-0650; Tava PC; 300/1200 BAUD
RBBS-PC: IBM-PC-UG, Seattle. WA 206-343-7843; 300/1200 BAUD
RBBS-PC: K.A.U.G., Silverdale. WA 206-692-8274; IBM XT; 300 BAUD; 5:30pm-9:30am
RBBS-PC: NIGHT SHIFT, Bothell. WA 206-488-0924; IBM PC; 300/1200 BAUD
RBBS-PC: PLANET CLAIRE, Seattle. WA 206-783-8037; IBM PC; 300/1200 BAUD; 5pm-10pm
RBBS-PC: PUGET SOUND, Lynnwood. WA 206-743-0162; IBM PC; 300/1200/2400
RBBS-PC: PUGET SOUND (SOUTHEND), Seattle. WA 206-281-7661; 300/1200/2400 BAUD
RBBS-PC: SEARS BUSINESS CENTER, Bellevule. WA 206-641-6265; IBM PC; 300/1200 BAUD
RBBS-PC: SEARS BUS. CNTR (Lynnwood), Lynnwood. WA 206-775-8412; 300/1200 BAUD
RBBS-PC: SEATTLE HOMEDOME, WA 206-946-1627; IBM PC; 300/1200/2400 BAUD
RBBS-PC: SHADOW, Lynnwood. WA 206-775-7409; IBM PC; 300/1200 BAUD
RBBS-PC: TRINITY, WA 206-778-3034; IBM PC; 300/1200 BAUD
REALM OF MOISTURE, Redmond. WA 206-882-9025; Atari; 300/1200 BAUD
REEF, Puyallup. WA 206-848-3371; LD; 300/1200/2400 BAUD
RIVERSIDE BBS, Bothell. WA 206-488-7551; Atari; 300 BAUD
ROUND TABLE II, Bellevue. WA 206-746-0829; TRS-4; 300 BAUD
SCRUNCHLAND, DesMoines. WA 206-824-4013; Atari; 300 BAUD
SEACOM-80, Seattle. WA 206-763-8879; TRS-1; 300/1200 BAUD
SHOOTING STAR, DesMoines. WA 206-838-7686; 300 BAUD
SHUTTLE EXPRESS, Redmond. WA 206-885-4636; 300 BAUD
SIXTY-FOUR EXPRESS, Kent. WA 206-852-9412; C64; 300 BAUD; 9pm-8am
SKYLINE, Seattle. WA 206-367-3697; Atari; 300/1200 BAUD
SKYLINE NORTHEND, (Alternate #) Lynnwood. WA 206-778-1143; 300/1200 BAUD
SOFTWARE SALERS, Seattle. WA 206-367-2026; TRS-3; 300 BAUD; 7pm-9am; *24 weekend
SPANAWAY USER'S GROUP, Tacoma. WA 206-531-0783; C64; 300 BAUD
SPEEDWAY, Seattle. WA 206-367-7509; Atari. 300/1200 BAUD
SS RIPTIDE, WA 206-546-8231; C64; 300 BAUD
SS TRADEWINDS, Tacoma. WA 206-752-2889; 300 BAUD
STALLEG XL, Seattle. WA 206-782-5534; Atari; 300/1200 BAUD
STARFLEET HEADQUARTERS, Seattle. WA 206-783-5589; Apple. 300 BAUD
STONEHENGE 1.21: AMIGA/OS9, WA 206-874-6381; Amiga; 300 BAUD; 5pm-8am
STONEHENGE 1.21: GOLDEN SUB, WA 206-488-0381; IBM PC; 300/1200 BAUD
STONEHENGE 1.21: J.J.'s, WA 206-632-1880; IBM PC 300/1200 BAUD
STONEHENGE 1.21: TWILIGHT ZONE, WA 206-745-2438; IBM PC; 300 BAUD
STONEHENGE 1.21: UNDERWORLD, Normandy Park. WA 206-244-6252; Compaq; 300/1200 BAUD
STONEHENGE 2.02: CKMCMS, Seattle. WA 206-329-0436; IBM PC; 300 BAUD
STONEHENGE 2.02: SANCTUARY, Bellevue. WA 206-747-6839; Compaq; 300/1200 BAUD
STONEHENGE 2.02: T.U.G. BBS (MPC5), Seattle. WA 206-632-0272; IBM PC; 300/1200 BAUD
STONEHENGE 2.02: TUKWILA STATION, Seattle. WA 206-244-0125; IBM PC; 300/1200 BAUD
TACOMA STAR TREE (TTST), Tacoma. WA 206-759-0615; LD; 300/1200 BAUD
TARDIS, Seattle. WA 206-329-2202; Datavue; 300/1200 BAUD; 6pm-8am; *24 weekend
TELE-MESSAGE 1, Seattle. WA 206-282-2482; C64; 300 BAUD; 5:30pm-11pm
TELE-MESSAGE 2, Seattle WA 206-282-2482; Atari; 300 BAUD; 5:30pm-11pm
TELE-MESSAGE 3: COSMIC CONNECTION, Bellevue. WA 206-641-3705; C64; 300 BAUD
TELE-PIRATER64, WA 206-543-8714; 300/1200 BAUD
TELE-TRAVEL, Kirkland. WA 206-823-6091; 300/1200 BAUD
TICOMM, Seattle. WA 206-784-4142; TI99; 300 BAUD; Evenings
TIGERS LAIR, DesMoines. WA 206-874-4115; Apple; 300 BAUD
TOXIC BBS, Kent. WA 206-854-6147; Atari; 300 BAUD
TRIDENT BASE ONE, Bremerton. WA 206-698-2387; Apple; 300 BAUD
TRON, Bothell. WA 206-485-7784; 300 BAUD
UNIX BBS, Yelm. WA 206-458-3086; S-100; 300/1200 BAUD
USPS EXCHANGE, Seattle. WA 206-323-0711; C128; 300 BAUD
VIEWPORT (PAUG), Mercerls. WA 206-236-2246; Amiga; 300/1200 BAUD
WAVE NETWORK: RADIO 1, DesMoines. WA 206-878-0158; C64; 300/1200 BAUD
WAVE NETWORK: RADIO 2, DesMoines. WA 206-941-7649; 300 BAUD
WAVE NETWORK: RADIO 5, DesMoines. WA 206-838-0783; C64; 300 BAUD

WBBS: THE MISSING LINK, North Hill, WA 206-878-1823; Sanyo; 300/1200 BAUD
WHITTLEBIT T-ROOM, Juanita, WA 206-868-2866; Onyx; 300/1200 BAUD
WILD CAT CAT-FUR, Bothell, WA 206-488-9704
XANTH II ST, Bellevue, WA 206-747-9638; 520ST; 300/1200 BAUD
XANTH II ST, (Alternate #) WA 206-682-8039; 520ST; 300/1200 BAUD
XANTH II ST NORTH & SOUTHEND, Seattle, WA 206-328-2755; 520ST; 300/1200 BAUD
128-XCHANGE, Olympia, WA 206-943-4548; C128; 300 BAUD
28 BARBARY LANE, Seattle, WA 206-323-2828; Atari; 300 BAUD
64 E/T, Lynnwood, WA 206-776-0749; C64; 300 BAUD

ADVENTURE IN THE TRIVIAL DIMENSION Windham, ME 207-892-9810
BLACK BEAR'S DEN (IBM & Macintosh) Old Town, ME 207-827-7517 8pm to 9am daily, 9am to noon weekends
CONFUSER USER Windham, ME 207-854-2687
DIAL-YOUR-MATCH -315 Westbrook, ME 207-854-1365
DOWNEAST CONNECTION, 300/1200 baud TIBBS, 207-797-5690 *24
EERC, the Equs Electronic Resource Center--20 Megabyte Hard Disk, ME 207-374-2203; Prometheus 300/1200 baud, 6am-6pm
MAGIC CRYSTAL Windham, ME 207-774-5570
MMOOS, Brunswick, ME 207-725-8456 *24
TIBBS, Portland, Maine 207-797-5690

ANLN, Hayden Lake, ID 208-772-6134 *24
IDAHO TELECOM SERVICE Rigby, ID 208-745-9438 *24
IFBBS Idaho Falls, ID 208-523-7400, 300/1200 baud *24
IDAHO BBS EXPRESS, Idaho Falls, ID 208-529-3036

99 BBS, Manteca, CA 209-239-9529; 300/1200 BAUD *24
DIAL-YOUR-MATCH #26 Clovis, CA 209-298-1328
THE PROGRAMMER'S RETREAT, Turlock, CA 209-668-4170 *24
RCP/M CBBS, Tulare, CA 209-685-0306; 300/1200/2400 BAUD *24
REGION 7 TEC CENTER ELECTRONIC BBS, Modesto, CA 209-571-5085

AMIS, Info New York, 212-767-6633
BULLET-80 New York, NY 212-740-5680 *24
COMM-80 Queens, NY 212-897-3392 *24
THE DATABASE BBS, 212-772-7167
DIAL-YOUR-MATCH -264 New York City, NY 212-219-1758
DIAL-YOUR-MATCH -286 New York, NY 212-925-6765
FIRST BASIS BOARD, New York City, NY 212-666-5015
GRAND CENTRAL TERMINAL 212-682-0681 *24
NET-WORKS New York, NY 212-410-0949
PALADIN'S PALACE, FOREM CBB, Queens, NY 212-699-0861 *24
PIRATE'S LANE, NYC, NY 212-421-7093
VINEYARD COMPUTER WORLD, NY 212-357-5679 *24

64 SHOP, Los Angeles, CA 213-566-2937; 300 BAUD; *24
64 SHOPPER Downey CA 213-566-2937; 300 BAUD *24
99BBS, La Habra, CA 213-947-7777
ABBS Computer Conspiracy Santa Monica, CA 213-829-1140
ABBS Pacific Palisades, Los Angeles, CA 213-459-6400
ALL NIGHT BBS 213-564-7636
AMIS TABBS, CA 213-366-2125
AMIS WVAUG, CA 213-783-8373
BBS B.R. Los Angeles, CA 213-394-5950 *24
BBS-64 SHOPPER, Downey, CA 213-566-2937 *24
CHECKER BOARD Torrance, CA 213-538-9795
COLORAMA OF LAX, CA 213-673-4045 *24
COMMODORE BBS, Los Angeles, CA 213-737-7581 *24
COMMODORE MONITOR, South Gate, CA 213-566-2937; 300 BAUD; *24
COMPUCENTER Los Angeles, CA 213-320-0222; 300/1200 BAUD *24
COMPUTER CONFERENCE, Center, Torrance, CA 213-212-5267
COMPUTER CONNECTION 213-657-1799
COMPUTER CONSULTANT'S NETWORK, West Los Angeles, CA 213-479-4074, 300/1200 baud *24
COMTELL, Los Angeles, CA 213-470-2673; 300/1200 BAUD *24
CONFERENCE-TREE #4 Santa Monica, CA 213-394-1505
CONFERENCE-TREE Kelp Bed, Los Angeles, CA 213-372-4800
DATAMATE Canoga Park, CA 213-998-7992
DIAL-YOUR-MATCH -36 Marina Del Rey, CA 213-397-6300
DIAL-YOUR-MATCH -52 Los Angeles, CA 213-225-9279
DIAL-YOUR-MATCH -164 Malibu, CA 213-457-9150
DIAL-YOUR-MATCH -238 Long Beach, CA 213-438-4777
DRAGONS GAME SYSTEM 213-428-5206
ELECTRIC LINE CONN. Sherman Oaks, CA 213-789-9512
FUNNY PHARM, CA 213-410-0221 *24
FUNNY PHARM, II, CA 213-631-7328 *24
FUNNY PHARM IV, CA 213-822-3553 *24
FUNNY PHARM V, CA 213-631-2911
FUNNY PHARM VI, CA 213-316-6033
GAMENET Palos Verdes, CA 213-541-8039 *24
GREENE MACHNE FRICASEED CHICEN, Arcadia, CA 213-445-3591
GREENE MACHINE Temple City, CA 213-287-1363
KANDY SHACK -3 Artesia, CA 213-402-1616
KLUGE COMPUTER 213-947-8128 *24
L.A. INTERCHANGE, Los Angeles, CA 213-631-3186 *24
LONG BEACH COMMUNITY COMPUTER 213-591-7239 *24
LYNZIE'S MOTHERBOARD, N. Hollywood, CA 213-659-1982 *24
MARINA MATCHUP, Los Angeles, CA 213-390-3239
NET-WORKS Coin Games Los Angeles, CA 213-336-5535
NET-WORKS Computer World Los Angeles, CA 213-859-0894 *24
NAVATION CO., Los Angeles, CA 213-881-6880
NET-WORKS Magnetic Fantasies Los Angeles, CA 213-388-5198
NET-WORKS Softwarx Los Angeles, Ca 213-473-2754
PASBBS Torrance, CA 213-516-7089 *24
PMS Los Angeles, CA 213-334-7614 *24
PMS O.A.C. Woodland Hills, CA 213-346-1849 *24
RBBS OF PACIFIC PABSADES Los Angeles, CA 213-459-6480 *24
RCP/M RBBS Downey, CA 213-861-2313 *24
RCP/M CBBS Pasadena, CA 213-799-1632 *24
RCP/M RBBS BBS Valley 213-360-5053
RCP/M RBBS Palos Verdes, CA 213-541-2503 *24
RCP/M RBBS Softwar Store Los Angeles, CA 213-296-5927 *24
TE-II 99 BBS Whittier, CA 213-947-7777; 300/1200 baud *24
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BULLET-80 Hawkins, TX 214-769-3036
COMPUTER RESET, Dallas, TX 214-272-7920; 300 BAUD
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NET-WORKS Winesap Dallas, TX 214-824-7455

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AMIS Pennsylvania 215-250-9471
AMIS Pennsylvania 215-432-9848
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BULLET-80 Langhorne, PA 215-364-2180
CALTEX -16, Easton, PA 215-258-5235 *24
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THE CITADEL, Philadelphia, PA 215-435-7018; 300/1200 BAUD *24
COMNET-80 North Wales, PA 215-855-3809
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HEMRES-80 Allentown, PA 215-434-3998
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NITE OWL 2, 215-759-7347; 300/1200 baud; *24
NITE OWL 3, 215-266-9723; 300/1200 baud; *24
RBBS Pennsylvania, 215-398-3937
RBBS Pennsylvania, 215-836-5116
TECHIE, Easton, PA 215-252-8867; 300/1200 BAUD *24
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BBS Computer Applications Poland, OH 216-757-3711

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BULLET-80 Chesterland, OH 216-729-2769
CAMELOT ATARI BBS Akron, OH 216-864-7002 *24
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COMNET-80 Akron, OH 216-645-0827 *24
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COMMODORE CLIPPER Akron, OH 216-928-4123 *24
COMMODORE COMMANDER Akron, OH 216-923-0347
THE COMMODORE CRUSADER, 216-864-8924 *24
COMMODORE EXPRESS Akron, OH 216-253-9247
THE COMMODORE GATEWAY, 216-896-9001 *24
COMMODORE RAINBOW Akron, OH 216-644-5771 *24
COMMODORE REALM Akron, OH 216-666-9463, 10pm-7am est.
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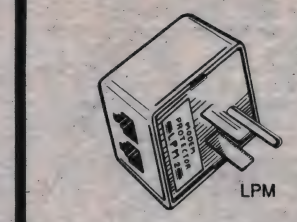
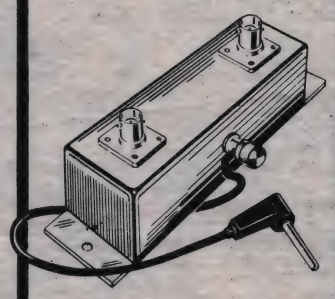
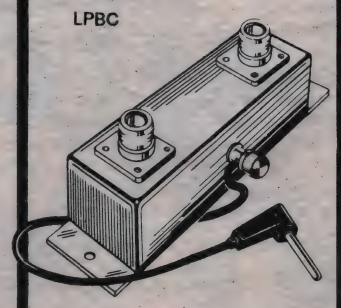
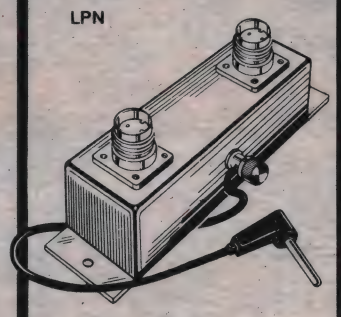
COMPU-CENTER, Akron, OH 216-929-4803 *24
COMPUTER EXPERIENCE 216-946-9076 *24

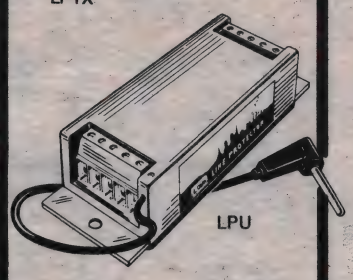
L-COM DATA LINE PROTECTION DEVICES











MODEL	CONNECTOR	# LINES	CLAMP VOLT	1-9	10-24	25-99

Safeguard Your Electronic Equipment - Use our Deluxe Dual-Stage Protectors
The L-COM Modem and Station Protectors provide superior suppression to guard electronic equipment such as computers, modems, and terminals from lightning and other electrical disturbances. The devices shown below utilize a unique two stage circuit to provide a sophisticated blend of high speed, gas discharge, voltage limiting in nano seconds and brute force protection, far superior to the "one way" Varistor system. Fast response time, reliable to 10K baud, and has negligible resistance. Proper grounding is the most important factor and L-COM has simplified this procedure by making use of the efficiently grounded AC outlets found in most offices and homes and come equipped with special plug-in provisions. The L-COM Modem and Station Protectors recover automatically in preparation for the next surge.

Modem Protectors - Plug In Series with RJ-11 Line, has Instant Built-In Ground

LPM-2	Modular (4)	2	* 25V	33.00	29.70	26.40
LPM-3	Modular (4)	2	** 170V	34.50	31.05	27.60

* Dedicated Communication Systems ** Telephone Co. Ring-Up

BNC Station Protectors - Offer Computer & Peripheral Data Line Protection
There is a better way to ensure dependable surge protection for your voltage sensitive coaxial cables. L-COM's Two-Stage Line and Station Protectors are "invisible" to normal data signals but quickly depress harmful voltage transients generated by atmospheric and man-made sources. An added feature offered on all protection devices listed below is a "simple" means of grounding. Each unit is supplied with a special 18" cable that plugs into any convenient grounded AC outlet. Line Protectors should be installed at each end of a long or outside line for maximum protection.

LPBC	BNC	1	6.8V	59.00	53.10	47.20

"N" Station Protectors - With Built-In and Improved Dual-Stage Protection

LPN	"N"	1	6.8V	66.50	59.85	53.20

Twinaxial Line Protectors - Install at each Point of Entry for Maximum Protection

LPTX	Twinaxial	2	5.1V	88.00	79.20	70.40

Universal Line Protectors - Safeguard Equipment against Dangerous Transients
The LPU-2 Series has a Two-Stage circuit for maximum protection of your equipment. The first stage has a gas tube device to handle heavy discharges and a Bipolar Trans Zorb for voltage limiting. A cast metal enclosure is provided with handy "no fault" Terminal Strips. Two clamping voltages are offered: RS232 > 26V and RS422 > 6.8V. Response time is less than 10 nano seconds; reliable to 10K Baud; Series Res. 5 ohms. A short ground cable with molded plug is supplied, which inserts into any AC grounded outlet.

LPU22A	Term Strip	2 (1 pr.)	RS442	6.8V	59.00	53.10	47.20
LPU24A	Term Strip	4 (2 pr.)	RS442	6.8V	88.00	79.20	70.40
LPU22B	Term Strip	2 (1 pr.)	RS232	25V	59.00	53.10	47.20
LPU24B	Term Strip	4 (2 pr.)	RS232	25V	88.00	79.20	70.40

The LPU-3 Series housed in an identical cast metal enclosure, contains a Two-Stage Protection circuit which includes Metal Oxide Varistors for faster response to handle an avalanche of high currents and a Bipolar Trans Zorb for voltage limiting. Recommended for modem protection or other fast operational devices. Introduces an unobjectionable 5 ohms. Supplied with a short ground cable with molded plug which inserts into any AC grounded outlet.

LPU32A	Term Strip	2 (1 pr.)	RS422	6.8V	69.00	62.10	55.20
LPU34A	Term Strip	4 (2 pr.)	RS442	6.8V	98.00	88.20	78.40
LPU32B	Term Strip	2 (1 pr.)	RS232	25V	69.00	62.10	55.20
LPU34B	Term Strip	4 (2 pr.)	RS232	25V	98.00	88.20	78.40

LIMITED WARRANTY: L-COM Warrants all protection products for a period of one year against defects in material and workmanship, if they have not been tampered with. Furthermore, L-COM shall not be responsible for any consequential damage or liability whatsoever, including without limitation, damages for injury to any person or property.

RS-232 Surge Protectors - Guard Against Voltage Spikes Entering Your EIA Ports
Metal Oxide Varistors on crucial lines (see below) act to clamp surges above 26 volts without affecting normal operation. This compact adaptor mounts permanently in series and all 25 lines are wired through. To be most effective Surge Protectors should be installed on both ends of a long line. Electrical surges clamp to frame ground and no external ground is necessary. Equipped with a male and female connector for in-series operation.

DSPS-3	RS232 Protector, lines 2, 3 & 7	24.95	22.70	19.96
DSPS-4	RS232 Protector, lines 2, 3, 7 & 20	26.95	24.52	21.56
DSPS-5	RS232 Protector, lines 2, 3, 4, 5 & 7	28.95	26.34	23.16
DSPS-5B	RS232 Protector, lines 2, 3, 4, 7, & 20	28.95	26.34	23.16
DSPS-6	RS232 Protector, lines 2, 3, 4, 5, 7, & 20	30.95	28.16	24.76

ADD $4.50 Shipping & Handling, Canada $9.50 - MA RES. 5% TAX

L-COM **TO ORDER Call 800-343-1455 TECHNICAL SUPPORT 617-682-6936**
DATA PRODUCTS 1755 Osgood St., No. Andover, MA 01845

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DIAL-YOUR-MATCH –177 Cleveland. OH 216-481-9476
FEDATA BBS, Cleveland. OH 216-476-1151 *24
FIRECOMM Akron. OH 216-666-0306
FIRESTONE PARK ATARI Akron. OH 216-724-7760
THE FOURTH DIMENSION, 216-644-4597 *24
FORUM-80 Cleveland. OH 216-943-2388; 300/1200 baud
THE GOLDEN KEEP, 216-896-9147 *24
HENRIETTA OUTHOUSE,Oberlin. OH 216-965-8151 8pm-7am
MEGA-FORCE BBS Akron. OH 216-699-9055
NEW AGE BBS Cleveland. OH 216-451-3280
NIGHT STALKER Akron. OH 216-376-6443
PIRATES DELIGHT Akron. OH 216-672-7580 *24
PMS Massillon. OH 216-832-8392 *24
PMS RAUG Akron. OH 216-867-7463 *24
RAILNET BBS Cleveland. OH 216-883-6298 *24
RBBS Lorain. OH 216-282-3423
RUBBER CITY ATARI Akron. OH 216-376-7618
S.T.A.R. BBS –1, Akron. OH 216-753-1199 *24
S.T.A.R. BBS –3, Akron. OH 216-753-5379
TBBS of Akron 216-724-2125 *24
TBBS OF SOUTH SUMMIT Akron. OH 216-724-1963 *24
TBBS OF TALLMADGE Akron. OH 216-633-7483 *24
TECHIE Cleveland. OH 216-944-1072
TELETERM 64, Lorain. OH 216-282-8848; 8:00pm-6:00am
TIMEX BULLETIN SERVICE, Parma. OH 216-661-4105
T/P RBBS, New Philadelphia. OH 216-364-3103; 300/1200/2400 baud *24
UNDERGROUND 64 Lorain. OH 216-282-8848 8pm-7am days
VICCOMM Akron. OH 216-896-0775 *24

ACELINE, Danville. IL 217-267-3530; 300/1200 BAUD *24
CENTRAL IL CONNECTION Riverton. IL 217-629-7006 *24
ICCC RBBS, Mattoon. IL 217-235-2000; 300 BAUD *24
THE INFO SYSTEM, Effingham. IL 217-342-3613; 300/1200 baud; 5:30pm to 8:30am; *24 on Sunday
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NET-WORKS C.A.M.S. Decatur. IL 217-429-5541
TRS-80 Effingham. IL 217-347-5884 *24
STARNET (ST ATARI NETWORK), Westville. IL 217-267-3530; 300/1200 BAUD *24

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AMIS Hart City. Elkhart. IN 219-262-3980
AMIS BBS Parlor City. Bluffton. IN 219-824-5198 *24
BBS 219-422-9180 *24
DARK CASTLE Warsaw. IN 219-269-5957 *24
ELKHART TOWNE CRIER Elkhart. Indiana 1200/300 Baud 219-875-8754 *24
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TIBBS-LAKE COMPUTER DEPOT Whiting. IN 219-659-1245 *24

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DIAL-YOUR-MATCH –230 Gaithersburg. MD 301-330-2784
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PMS Ellicott City. MD 301-465-3176
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KRICKIT Dover. DE 302-734-0179. 10pm-7am
LARRY'S ABBS Newark. DE. Voice 302-731-1583 Modem 302-737-7788
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AURORA-NET, 303-680-9292
AURORA NETWORKS Denver. CO 303-343-8401 *24
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BARDNET Ft. Collins. CO 303-493-1068
BBS IBM PC, Denver. CO 303-773-2699 *24
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HBBS Denver. CO 303-343-8401 *24
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RCP/M RBBS Boulder. CO 303-499-9169
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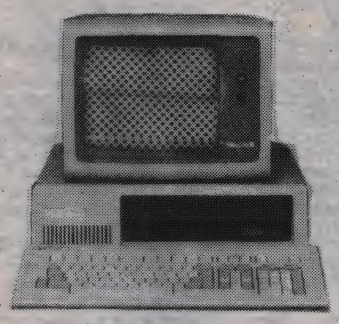

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CONFERENCE-TREE Victoria. TX 512-578-5833
DATA ONE BBS 512-937-1302; 300/1200/2400 BAUD *24
DATABANK BBS 512-992-6441; 300/1200/2400 BAUD *24
DATABANK II 512-643-2251; 300/1200 BAUD *24
DAYTIMER 512-991-1343; 300/1200 BAUD *24
DIAL-YOUR-MATCH -38 Austin. TX 512-451-8747
DIAL-YOUR-MATCH -189 Austin. TX 512-477-7593

DRAGAONS LAIR 512-850-9400; 300 BAUD *24
FORUM-80 San Antonio. TX 512-655-8143
GROLOGIC/LROIS 512-854-7377; 300 BAUD *24
HACKERS AND PIRATES BBS, 512-297-5590
KCA BBS/RCPM 512-346-8876 *24
MR. ROGERS NET 512-854-0155; 300 BAUD *24
THE NET 512-854-9020; 300/1200 BAUD *24
THE OUTPOST 512-992-4782; 300 BAUD *24
POLARIS San Antonio. TX 512-650-0772
SATUG BBS San Antonio. TX 512-494-0285
SPACE CANTINA 512-884-5115; 300 BAUD *24
SUPERNET 512-991-5786; 300/1200 BAUD *24
ULTRALITE, San Antonio. TX 512-659-5470
WILLOW CREEK 512-643-2471; 300 BAUD *24

THE BEAR SWAMP BBS Marysville. OH 513-644-0714; 300/1200/2400 BAUD *24
THE CATHOUSE Cincinnati. OH 513-528-0707 *24
CBBS 513-825-4478 *24
CIN-SOFT 513-396-7467 *24
CIN-TUG (TRS-80) (TBBS) 513-474-2985
COCONUT Cincinati. OH 513-984-8705 *24
COMM-DATA 513-271-4274 *24
CRAB 513-738-4813 *24
LAZER BAY 1 513-777-6178 *24
PORTERONICS, Cincinnati. OH 513-474-4620
SOFTWARE PLUS 513-621-9273
THE UNDERGROUND, Dayton. OH 513-433-3232; Atari *24
XENET TELECOMM BBS, Xenia. OH 513-372-3373; 300/1200 baud; *24

CBM-U CONNECTION LaSalle. Quebec 514-365-9914 *24
CONNECTION-80 LAUAL BELE Laual. Quebec. Canada 514-622-1275 *24
DATAMATE Montreal. 514-645-9835
DISTRA-SOFT Montreal. Quebec. Canada 514-327-5764 *24
MICRO-DIAL, Montreal. Quebec. Canada 514-487-2792; 300/1200 baud *24
ON-LINE COMUPTERLAND Montreal. Quebec. Canada 514-931-0458 *24
TESTAMENT St. Laurent. Quebec. Canada 514-332-6852 *24

THE BANDIT'S BOARDWALK, Marshalltown. IA 515-753-8115 *24
C.U.N.I. BBS, Mason City. IA 515-424-8029 *24
NET-WORKS COMPUTER EMPORIUM Des Moines. IA 515-279-8863
TIBBS Knoxville. IA 515-842-2104
UPLOAD/DOWNLOAD ATARI, Marshalltown. IA 515-752-4099; 300 baud; 11pm Fri-6am Sat

ABBS PIRATES COVE Long Island. NY 516-698-4008
ADVENTURE BBS 516-621-9296
CBBS LICA LIMBS Long Island. NY 516-561-6590 *24
COLORAMA OF MIDDLE ISLAND Long Island. NY 516-924-6262 *24
CONNECTION-80 Centereach. NY 516-588-5836
CONNECTION-80 Great Neck. NY 516-482-8491 *24
DIAL-YOUR-MATCH -97 Farmingdale. NY 516-293-0499
DIAL-YOUR-MATCH -262 S. Farmingdale. NY 516-293-8251
DRAGON'S LAIR Hewlett. NY 516-374-5071
FALKENS MAZE BBS Long Beach. NY 516-431-3171; 300/1200/CAT202 *24
L.I.E.R., Long Island Epson RCP/M 516-536-1546; 300/1200/2400 baud *24
LION Long Island Osborn Network 516-567-8267
LNW BBS 300/1200 Baud Long Island. NY 516-924-9229
NET-WORKS PIRATE'S TREK 516-627-9048
STAR TREK III 516-569-0589 *24 run on ATARI 300/1200
TI SOURCE Long Island. NY 516-475-6463
W.A.B.S. Port Washington. NY 516-944-9821

BENCHBOARD BBS, 300 BAUD. 517-394-2447 *24
C.H.A.O.S. Lansing. MI 517-373-6788
C/NET! Saginaw. MI 517-793-7407
THE CLUB NETWORK, 517-372-3131 *24
COMPUTRONICS, Greenbush. MI 517-739-7027 *24
CONNECTION-80 Lansing. Mi 517-339-3367
NORTH FOURTY, Oseoda. MI. 300 baud. 517-739-3352 *24

CAPITOL CITY BBS Albany. NY 518-346-3596 *24
COMP-U CRAFTS CBM CONNECTION Gloversville. NY 518-725-2173 9pm-8am est.
TIBBS Albany. NY 518-765-4993

APPLE-SPICE (NETWORKS II) Windsor. Ontario. Canada 519-945-3555 6pm-6am
CBM-U COMMODORE London Ontario 519-679-9101 *24
NORATECH ONLINE Windsor. Ontario. Canada 519-966-4334 *24

THE 64-CONNECTION Clinton. MS 601-924-1100
THE A & M CONNECTION, Biloxi. MS 601-374-5068 *24
APPLE GAME PLAYING SYSTEM Clinton. MS 601-924-0298
THE BLACKBOARD Jackson. MS 601-352-3591
BULLET-80 Hattiesburg. MS 601-264-2361 *24
C-64 GOSSIP CITY, Biloxi. MS 601-374-5068 *24
C.A.U.G. Biloxi. MS 601-388-3490
CONNECTION — RAVICS BBS Jackson. MS 601-981-1100 *24
GULF COAST COMMODORE BBS, 300/1200 Baud. 601-799-2494 *24
MICRO-COM CP/M Jacksonsville. MS 601-354-1239
NEW EXPRESS Columbus. MS 601-327-5062 Friday. Saturday. & Sundays 9pm-12pm
PAYTON'S PLACE BBS (COMMODORE), BILOXI. MS 601-388-3673 *24
REMOTE APPLE Jackson. MS 601-992-1918 *24
TI EXPANSION BBS Jackson. MS 601-352-5089

ABBS Phoenix. AZ 602-898-0891
A.C.C.E.S.S. Phoenix. AZ 602-996-9709 *24
A.C.C.E.S.S. Phoenix. AZ 602-957-4428 *24
A.C.C.E.S.S. Phoenix. AZ 602-274-5964
A.C.C.E.S.S. Scotsdale. AZ 602-998-9411 *24
ADAM 2 APPLE Phoenix. AZ 602-264-3800
BBS APOLLO Phoenix. AZ 602-246-1432 *24
CACTUS PATCH Yuma. AZ 602-344-8070; 300/1200/2400 BAUD *24

CBBS TSG Tucson. AZ 602-574-0327 *24
CBBS TSG Tucson. AZ 602-746-3956 *24
COCO PUB (059) Chandler. AZ 602-899-1350 *24
CONFERENCE TREE Clendale. AZ 602-931-1829
DCUG BBS Douglas. AZ 602-364-3960 *24
KANDY SHACK -4 Yuma AZ 602-342-2383
TWILIGHT ZONE (ATARI) Tucson. AZ 602-790-8805 *24

ACCESS 80 BBS NH 603-434-6225
ALTER-NET Laconia. NH 603-524-1000
CONNECTION-80 Peterborough. NH 603-882-5041
THE ELECTRONIC ORPHANAGE, 603-882-9312; 300/1200 BAUD *24
HUDSON BBS NH 603-883-2862
JOE'S ASYLUM, Dover. NH 603-742-0250
KEENE BBS NH 603-357-4306
NET-WORKS Portsmouth. NH 603-436-3461
P.E.R.C.S., Greenville. NH 603-878-2642
QUAGMIRE (ATARI) Portsmouth. NH 603-433-1859 *24
SOFTWARE REFERRAL SERVICE 603-625-1919
SPECTRE BBS (ATARI) Portsmouth. NH 603-436-7475

ABBS Vancouver. BC 604-437-7001
CBBS Prince George. BC CN 604-562-9515
LANDS END RCP/M, Sidney. British Columbia 604-656-9115
RCP/M CBBS Frog Hollow. Vancouver. BC. CN 604-873-4007
RCP/M RBBS Surrey. Vancouver. BC. CN 604-584-2643
RCP/M Terry O'Brien. Vancouver. BC. CN 604-584-2543

DOCS BBS, Rapid City. SD 605-923-3727; Atari; 300 baud; Friday 11pm to Sunday 5pm

BBS Lexington. KY 606-273-1920
BILL-BOARD 606-371-9219 *24
DATANET Cincinnati. OH 606-727-3011
NKUBBS/PMS Cincinnati. OH 606-572-5685
THE RUPPEL-SET TBBS Cincinnati. OH 606-291-9255
SOFTWARE WAREHOUSE BBS, Nicholasville. KY 606-223-4821

"THE COMMODORE DOMAIN" Ithaca. NY 607-272-4060 9pm to 7am on weekdays. 6pm to 7am on weekends
SUNY BBS, Binghamton. NY 607-777-3258; 300/1200 baud; TRS 80 Model 4; *24
TOWN CRIER BBS Binghamton. NY 607-648-2366

BITS II, Madison WI 608-255-2755 *24
ELECTRIC MAGAZINE, 608-784-6500; Commodore C-64 based *24

ABBS Turnersville. NJ 609-228-1149
THE CASINO RBBS-PC, Atlantic City. NJ 609-652-6030; 300/450/1200/2400 BAUD
THE CAVE BBS, W. Trenton. NJ 609-882-9195; 300/1200 BAUD *24
DANTE'S INFERNO Glassboro. NJ 609-863-0005; 300/1200/2400 BAUD
GANDALF BBS Plainsboro. NJ 609-799-4643
GREENE MACHINE Voorhees. NJ 609-429-4542 *24
KMMM PASCAL BBS Bellmawar. NJ 609-232-0773 *24
MILLIWAYS Princeton. NJ 609-921-1994
RATS Wenonah. NJ 609-468-5293
RATS Wenonah. NJ #2 609-853-8268
THE RATS NEST BBS 609-261-5498
RBBS THE COMPUTER CONNECTION, Voorhees. NJ 609-784-9404 *24
THE TARDIS BBS 609-448-1361
TARI BOARD Maple Shade. NJ 609-234-9240
TGIF-THE FRANKLIN USERS BBS, Blackwood. NJ 609-228-7456
THE VOORHEES Z-NODE, Voorhees 609-428-8864 *24

ABBS Calvary Memorial Church 612-472-3895 *24
ABBS Calvary Mission Church. MN 612-471-0252
ATARI BARN, Minneapolis. MN 612-521-5398; 300/1200 BAUD *24
BBS Richfield. MN 612-869-0054
CAPTAINS LOG APPLE NETWORKS 612-377-7747
CBBS Richfield. MN 612-423-5016
COMMODITIES/ABBS APPLE 612-333-8970
COMPUTER PLACE TRS 612-869-3246
CONFERENCE TREE -17 APPLE 612-854-9691 *24
ERIK'S NET NETWORKS-APPLE 612-920-3975
GOLIATH MCMS TRS 612-753-3082
HEATHKIT ZENITH 612-778-1213
JOB SYSTEM, THE NETWORKS, APPLE 612-542-9597 *24
KNIGHTS OF THE ROUNG TABLE 612-457-4139
L5 MINNESOTA SPACE BBS, 612-920-5566 *24
LAWSIG 612-872-2352
LOCI'S-NET 612-571-5965
MARIO'S HIDEOUT 612-645-0826
MASTER CONTROL 612-473-6668
MCMS MC SOFTWARE Minneapolis. MN 612-533-1957 *24
MOTEL II Minneapolis. MN 612-788-7484; 300/1200 baud *24
NC SOFTWARE 612-533-1957
PC TURNING POINT 612-926-5666; 300/1200 BAUD *24
PCjr-EXPRESS MN 612-644-6302 *24
PIRATE ISLAND 612-825-5852
PIRATES PLACE 612-781-9266
PMS Minneapolis. MN 612-929-6699
PMS Twin Citiea 612-929-8966
SAFEHOUSE 612-724-7066
SIMPLE SIMON 612-432-0428 *24
SIMPLE SIMON RBBS Apple Valley. MN 612-432-8403
TC-AMS Minnetonka. MN 612-938-4799 *24
TCO NARNIA, New Brighton. MN 612-636-6228
TERMINAL STATION 612-423-5048
TWIN CITY ATARI INTEREST GROUP 612-432-3779
UNITED RBBS 612-731-1063

ABBS COMPUMART Ottawa. Ontario. Canada 613-725-2243
ALI COMPUTERS Ottawa. Ontario. Canada 613-745-6372
ALLEYCAT Ottawa. Ontario. Canada 613-236-1145
APPLE CORE Ottawa. Ontario. Canada 613-224-9992
BIT BYTERS Ottawa. Ontario. Canada 613-446-6234
BNR Ottawa. Ontario. Canada 613-726-8120
CAVEMAN Ottawa. Ontario. Canada 613-829-5327
CBE/MAC Ottawa. Ontario. Canada 613-820-7537
CHAR'S LINE Ottawa. Ontario. Canada 613-723-1079
CODE CONJURERS Ottawa. Ontario. Canada 613-232-4650
COMPUCENTER Ottawa. Ontario. Canada 613-230-7154
CONTACT Ottawa. Ontario. Canada 613-836-7854
COYOTE Ottawa. Ontario. Canada 613-526-0062
CRACKERS 2 Ottawa. Ontario. Canada 613-820-3171
CUBBS Ottawa. Ontario. Canada 613-836-7667

DATA/SF NET Ottawa. Ontario. Canada 613-726-1100
DOC'S R CAN Ottawa. Ontario. Canada 613-825-0400
DRIE Ottawa. Ontario. Canada 613-990-5847
EATON'S Ottawa. Ontario. Canada 613-234-5488
ELECTRIC BLUE Ottawa. Ontario. Canada 613-737-7994
EXCELTRONICS Ottawa. Ontario. Canada 613-230-4594
THE EXCHANGE Ottawa. Ontario. Canada 613-592-0240
FAST 80 Ottawa. Ontario. Canada 613-741-6160
GWN Ottawa. Ontario. Canada 613-829-0827
HEATH BOARD Ottawa. Ontario. Canada 613-829-0539
INFO CENTRE Ottawa. Ontario. Canada 613-990-9774
INPUT Ottawa. Ontario. Canada 613-594-3349
JITA Ottawa. Ontario. Canada 613-737-9380
LATENIGHT Ottawa. Ontario. Canada 613-731-8492
LE GAULOIS Ottawa. Ontario. Canada 613-824-9030
LIVE WIRE Ottawa. Ontario. Canada 613-521-1756
MAC BBS Ottawa. Ontario. Canada 613-829-0259
MAC WAREHOUSE Ottawa. Ontario. Canada 613-824-4383
MEDIALAND Ottawa. Ontario. Canada 613-820-7138
MICROCOM, INC. Ottawa. Ontario. Canada 613-727-1612
MISSING LINK Ottawa. Ontario. Canada 613-225-4523
MODEM WORLD Ottawa. Ontario. Canada 613-727-0575
MUCKBOX Ottawa. Ontario. Canada 613-729-9672
NCAUG Ottawa. Ontario. Canada 613-829-6641
OHCC Ottawa. Ontario. Canada 613-723-2252
OMFS Ottawa. Ontario. Canada 613-830-2823
OMX Ottawa. Ontario. Canada 613-731-3419
ORION I Ottawa. Ontario. Canada 613-445-5319
OTTAWA ONLINE Ottawa. Ontario. Canada 613-526-4141
THE OUIJA BOARD/TCC Ottawa. Ontario. Canada 613-837-8238
PEACH MICROSYSTEMS Ottawa. Ontario. Canada 613-232-7452
PROTON PALACE 3 Ottawa. Ontario. Canada 613-727-8148
THE RELAY 4.0 Ottawa. Ontario. Canada 613-830-5500
SPERRY BOARD Ottawa. Ontario. Canada 613-726-9427
TAROT Ottawa. Ontario. Canada 613-521-7004
TBC1 Ottawa. Ontario. Canada 613-820-4646
TBC2 Ottawa. Ontario. Canada 613-820-4669
TBC3 (1200) Ottawa. Ontario. Canada 613-820-0903
TBC3 (300) Ottawa. Ontario. Canada 613-820-0010
THEATRE OF PAIN Ottawa. Ontario. Canada 613-821-3206
TI 99/4a Ottawa. Ontario. Canada 613-738-0617
TWILIGHT ZONE Ottawa. Ontario. Canada 613-225-9074

THE BANDIT Westerville. OH 614-895-7209
BULLET-80 Ironton. OH 614-532-6920
C.O.R.E. RBBS/RCPM Reynoldsburg. OH 614-864-2673 *24
DELAWARE COUNTY Delaware. OH 614-363-1018 *24
THE DISK EXCHANGE BBS, 614-369-2636 *24
DR. DOWNLOAD Granville. OH 614-587-3774 *24
ELECTRIC CHRONICLE New Albany. OH 614-855-1026 *24
ELECTRIC CONNECTION Roseville. OH 614-697-7075; Commodore & Atari 4:00pm Saturday to 4:00 am Sunday
HEARTBREAK HOTEL Columbus. OH 614-837-1061
MODEM MANIA (NETWORKS) Columbus. OH 614-475-9791 *24
OHIO VALLEY BBS 614-423-4422
T-T TECH LINE Westerville. OH 614-965-4378 *24
TODAY'S COMPUTERS Columbus. OH 614-436-0637
UP-N-RUNNIN' BBS Mt. Vernon. OH 614-397-1069

BBS Westmoreland. TN 615-666-5887 7pm-12pm daily
BBS 615-877-6781
THE BOARDWALK 615-359-2650
BULLETIN/68 Hixon. TN 615-842-6809
COBRA, Clarksville. TN 615-645-8632 *24
COCO PALACE, Morristown. TN 615-581-9752 *24
COLOR-RAMA Crossville. TN 615-839-3130 *24
COMMODORE BBS Newport. TN 615-623-2730; *24 weekends
FT. APOCALYPSE, Clarksville. TN 615-387-2467 *24
GALAXY WORLD BBS Chatti. TN 615-899-5757 *24
JOVID B. LEIGHFORD TECHNOLOGIES RBBS, 615-821-JBLT (5258); 1200/2400 BAUD *24
KNIGHT-LINE Nashville. TN 615-297-6037
THE MINES OF MORIA TIBBS, 300 Baud. 615-267-1721 *24
MUSIC CITY MACINTOSH (MCMac), Nashville. TN 615-822-6741; Macintosh
THE OMAGA BOARD Five Points. TN 615-852-4417; 300 baud; 9pm-6:30am central
THE POWER SUPPLY, Nashville. TN 615-269-6186; 300/1200 BAUD
R/CPM Cookeville. TN 615-528-5039
REBEL CORNER 615-983-6163 *24
ROCK CITY STUDENT BBS, Chattanooga. TN 615-875-6311 *24
SYD'S IBM BBS, Knoxville. TN 615-693-4711; 300/1200 baud; *24
TIBBS Knoxville. TN 615-691-9558

ABBS COMPUTER ROOM Kalamazoo. MI 616-382-0101
AMIS G.R.A.S.S. Grand Rapids. MI 616-241-1971 *24
BATTLE CREEK CENTRAL Battle Creek. MI 616-962-0400
CBM-U COMMODORE Holland. MI 616-396-7106 *24
COMMODITY TRADERS 616-731-5330 *24
CONNECTION-80 W. MI Micro Group MI 616-457-1840 *24
DEBLASE BBS, 616-784-4179
GRAND RAPIDS TURBO BBS, Kentwood. MI 616-455-6870
LITTLE BLUE, 616-243-2645
MULTIBOARD Holland. MI 616-335-8044; Amiga. Apple. IBM. TRS *24
OUTER LIMITS, Grand Rapids. MI 616-281-4327; PCjr and Tandy 1000; 300/1200 BAUD *24
SUPERSERVICE, 616-791-2109
TELE-A-COMP BBS Sparta. MI 616-887-9309

C64 ONLYS. 617-837-4117. 6pm to 10:30pm
XEVIOUS, Needham. MA 617-449-4146 or 617-449-2589 *24
99'ers ASSOCIATION, Malden. MA 617-321-8214 *24
AMIS STARBASE 12 Philadelphia. PA 617-876-4885
ATHEX, Melrose. MA 617-662-4840 *24
BCS TI99 BBS -1, Weymouth. MA. 300 baud. 617-331-4181 *24
BCS TI99 BBS -2, Weymouth. MA. 300 baud. 617-335-8475 *24
B.C.S. TI-99/4A BBS, Lexington. MA 617-331-4181 *24
B.C.S. TELECOM BBS, Quincy. MA 617-472-1676 *24
BIG BOARD RCP/M, Newton. MA 617-965-7259; Password=bigboard *24
THE BILLBOARD 617-965-8761 *24
BOSTON COMPUTER SOCIETY TELECOM Quincy. MA 617-472-1676 *24
BOSTON COMPUTER SOCIETY TI 99/4A Lexington. MA 617-331-4181 *24
BOSTON INFO EXCHANGE Boston. MA 617-423-6985 *24
BULLET-80 Boston. MA 617-266-7789 *24
C64 ZONE & ONLINE ADVENTURE Duxbury. MA 617-837-4117

CBBS Boston. MA 617-646-3610 *24
CBBS Lawrence General Hospital. Boston. MA 617-683-2119
CBBS MICROSTAR Worchester. MA 617-752-7284
CAPITAL PC USERS GROUP, 617-229-2915. *24
COMPUTER BARGAIN GUIDE, Waltham. MA 617-899-0060 *24
CUL-DE-SAC Holliston. MA 617-429-1784; 300/1200 BAUD *24
DAVIS-INFO-NET, Cambridge. MA 617-576-1269 6pm-11pm
DD Net Boston. MA 617-536-9410 *24
DIAL-YOUR-MATCH -85 Worcester. MA 617-792-6234
DIAL-YOUR-MATCH -215 Westport. MA 617-996-8699
DIAL-YOUR-MATCH -284 Hyde Park. MA 617-361-5459
FORUM-80 Westford. MA 617-692-3973
GOSUB TRS-80 BBS, Worcester. MA 617-756-1442; 300 baud
THE INFO DIRECTORY Boston. MA 617-247-3048; 300/1200 BAUD *24
NCCBBS II MA 617-675-5979 *24
NET-WORKS PIRATE'S HARBOR Boston. MA 617-720-3600
NEW ENGLAND COMP. SOC. Maynard. MA 617-897-0346
PIRATE'S CHEST, Waltham. MA 617-891-1349 *24
PIRATE'S HARBOR, Boston. MA 617-720-3600 *24
PMS APPLE GUILD Weymouth. MA 617-767-1303 *24
PMS COMPUTER CITY Danvers. MA 617-774-7516
THE PRO-99ER N. Reading. MA 617-664-5988 SYSOP Gary Blydenburgh *24
RCP/M MCBBS SUPERBRAIN Lexington. MA 617-862-0781 *24
THE SPRING-BOARD, Fall River. MA 617-675-5979; 300/1200 baud; *24
SWAMPLAND NITE-LITE Swampland. MA 617-595-5036 *24
TERM EXEC ON-LINE NEWSLETTER, Lexington. MA 617-863-0282 *24
T-I-M-E-C-O-R 617-720-3600 *24
WORD WRAP, S. Attleboro. MA 617-761-9036
XEVIOUS, Framingham. MA 617-875-3618 or 617-449-7322 *24
YELLOW DATA, Belmont. MA 617-489-4930 *24

BLACK FORTRESS, Belleville. IL 618-398-7608 *24
BOARD FOR THE BORED, Belleville. IL 618-235-9057 *24
THE CAVERNS OF QYU, Mt. Vernon. IL 618-242-2252; Monday thru Saturday *24
COMLINK, Collinsville. IL 618-344-3907 *24
COMM CENTRAL Fairview Hts.. IL 618-624-6248
THE CRYPT, Highland. IL 618-654-7702 *24
GALAXY 1, Belleville. IL 618-234-6632 *24
GARDEN OF EDEN Belleville. IL 618-235-2814 *24
THE GREAT PYRIMID, Belleville. IL 618-235-2517 *24
HELLTOWN, Belleville. IL 618-234-8824 *24
INNERCIRCLE BBS, Salem. IL 618-548-6904 7pm-7am
THE MENEGERIE SAFB. IL 618-744-1512
NATIONSERV, Fairfield. IL 618-847-2291 *24
S.O.S. BBS, Fairview Hts.. IL 618-624-6248 *24
THIS 'N THAT, Belleville. IL 618-277-9726 *24
VORTEX INFO SYSTEM, Highland. IL 618-654-4729
WARLOCKS CASTLE Collinsville. IL 618-345-6638; 618-345-4108; 618-345-6234 *24

CBM-U COMMODORE Escondido. CA 619-746-4003 *24
CONNECTION-80 Escondido. CA 619-746-6265
DIAL-YOUR-MATCH -148 Vista. CA 619-727-6431
DIAL-YOUR-MATCH -153 San Diego. CA 619-272-1503
DIAL-YOUR-MATCH -183 San Diego. CA 619-695-2533
DIAL-YOUR-MATCH -225 Escondido. CA 619-746-6751
DIAL-YOUR-MATCH -320 Imperial Beach. CA 619-428-0318
ONLINE CDC San Diego. CA 619-452-6011
ONLINE SABA San Diego. CA 619-692-1961 *24
ONLINE Santee. CA 619-561-7271 *24
PMS COMPUTER MERCHANT San Diego. CA 619-582-9557
PMS DATEL SYSTEMS INC. San Diego. CA 619-271-8613
PMS Escondido. CA 619-746-0667
PMS Lakeside. CA 619-561-7277 *24
RCP/M RBBS San Diego. CA 619-273-4354 *24
SOUTHERN CALIFORNIA COMPUTER BBS, El Cajon. CA 619-282-3525
TI DATABASE, Chula Vista. CA 619-427-6154
TIBBS Fontana. CA 619-350-8583
TIBBS San Diego. CA 619-276-3173

ANLN San Diego. CA 619-723-8996 *24
BARDNET Granville. ND 701-728-6552 *24
COLORAMA OF MINOT Minot. ND 701-839-7081; 300 BAUD *24
COUNTRY MICRO Minot. ND 701-839-0390
THE DISCONNECTION Bismarck. ND 701-222-3385 *24
TELE-BOARD Parshall. ND 701-862-3170 5pm-8am CST daily. 5pm Friday-8am Monday CST

GAMING ONLINE/LAS VEGAS Las Vegas. NV 702-456-0626
OMS CENTURY 23 Las Vegas. NV 702-878-9106 *24
THE OWL, APPLE/FRANKLIN Las Vegas. NV 702-453-6250
SIGNON Reno. NV 702-826-7234
SIGNON Reno. NV 702-826-7277

ABBS SOFTWARE SORCERY Herndon. VA 703-648-9406
ARMUDIC BBS Burke. VA 703-569-8305 *24
ATARIST BBS, Falls Church. VA 703-532-4836; 7pm-8am weekdays; *24 weekends
BBS IBM HOSTCOMM Fairfax. VA 703-978-9592 *24
BBS IBM HOSTCOMM Fairfax. VA 703-978-0921 *24
BBS IBM HOSTCOMM Fairfax. VA 703-591-5120 *24
BBS IBM HOSTCOMM Fairfax. VA 703-425-9452 *24
BBS IBM HOSTCOM Springfield. VA 703-425-7229 *24
BBS IBM PC Annandale. VA 703-560-0979 *24
BBS IBM PC Dale City. VA 703-680-5220 *24
BBS IBM PC Vienna. VA 703-560-7803 *24
C-HUG BBS Fairfax. VA 703-360-3812 *24
CARRIER Alexandria. VA 703-823-5210
CBBS Amrad. Washington. DC 703-734-1387 *24
COMPUCENTER NCTCUG 703-836-0384; 300/1200 BAUD *24
CORVETTE DRIVER'S BBS Woodbridge. VA 703-590-9206; IBM; 300/1200/2400 baud *24
EAST COAST FORTH BOARD, McLean. VA 703-442-8695; 300/1200/2400 baud; *24
FORUM-80 Prince William City. VA 703-670-5881
SWITCHBOARD Alexandria. VA 703-765-2161 *24
TCUG BBS Washington. DC 703-836-0384 *24
TRITECH'S BBS VA 703-998-7789
THE WIRE, Dale City. VA 703-494-4366 *24

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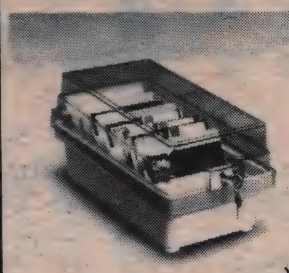

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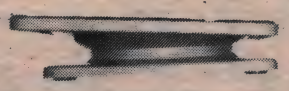

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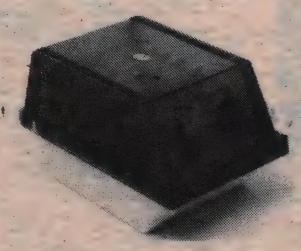

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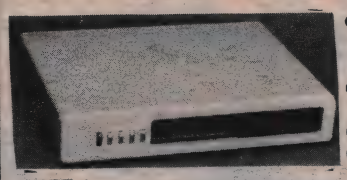

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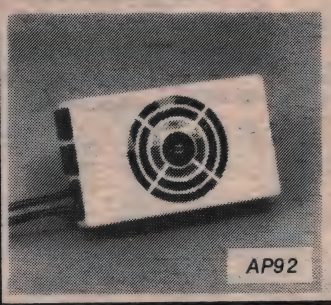

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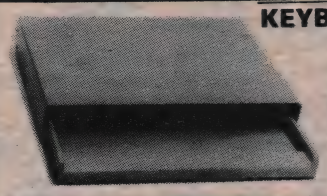

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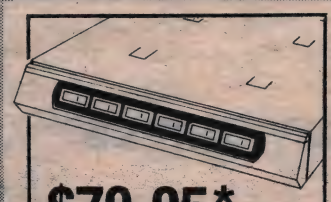

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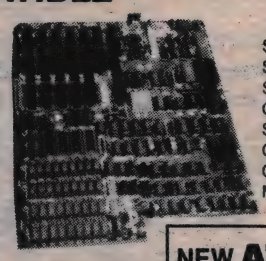

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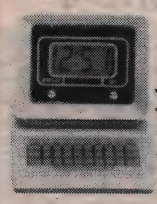

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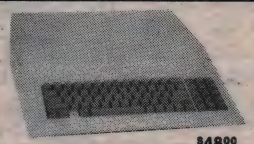

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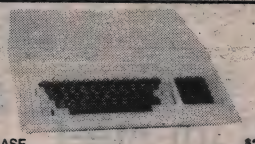

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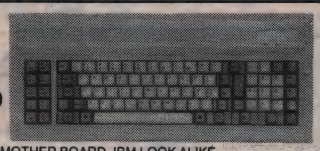

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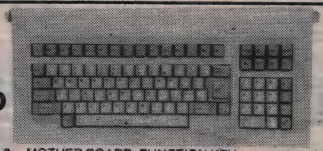

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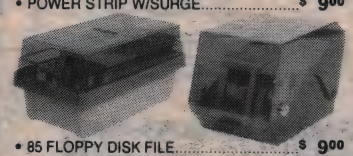

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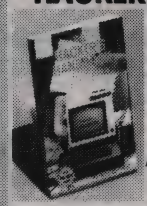

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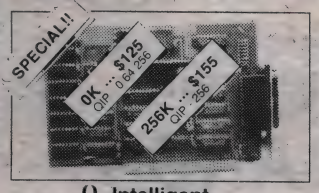

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IBM PC
64K BASIC SYSTEM
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IBM AT
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$1650

COMPAQ 286
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Additional Configurations From Above Call

AMERICAN XT/AT (IBM XT/AT COMPATIBLE)

AMERICAN XT
Basic System 128K w/135 Watts P.S. & 5150 Keyboards **$550**
COMPLETE COLOR SYSTEM
640K w/2 DS/DD Drives, Serial, parallel, Game Port, RTC. Color Graphic Card, Tatung (1360) (RGB/G/A) Monitor **$1450**

AMERICAN AT
Basic System 512K w/200 watts P.S. & 1-1.2 M Floppy w/AT Keyboards **$1750**
ENHANCED SYSTEM
All the features of basic system plus serial/parallel, color card, 20 MB HD (½ ht) **$2595**

UPGRADE XT/PC TO AT

(Use 286 XT Motherboard)

$895

PC/XT SPEED IMPROVEMENT

(70% Faster)

Turbo module plugs directly into IBM PC/XT Motherboard

$125

XT — PERIPHERALS

Disk Controller Card $50
HD Controller Card $145
I/O Plus Card $95
(Serial, Parallel, Gameport, RTC)
384K Multifunction w/OK $95
Color Graphic Card $85
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Monochrome Card $85
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AM-XT Motherboard $250
AM-XT Case $65

KEYBOARDS

5150 ..... $55
5151 ..... $75

POWER SUPPLY

135 Watts P.S. $80
150 Watts P.S. $90

DISK DRIVES

360K DS/DD $105

HARD DISK — XT/PC

10MB $450
20MB $499

MONITORS

Taxan 121/122 TTL monochrome $145
Taxan 115/116 Composite $110
Taxan 620 RGB Monitor $350
Taxan 640 w/555 ..... $825
Tatung 1322 (RGB) $325
Tatung 1360 (switchable color/green/amber) $350
Tatung 1370 (Hi-Res) $505

TAPE BACK-UP

10MB (Irwine/Internal/XT) $450
10MB (Irwine/External/XT) w/surge protection $650
20MB (Irwine/Internal/AT) $550

AT-PERIPHERALS

AT Case $125
AT KB $85
AT P.S. 200 watts $160
Serial/Parallel $100
Controller HD/FDC $295
1.2 M Drive $150
20 MB HD $425
360K Drive for AT $105

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* Prepaid Cashier's Ck - Free Shipping UPS Ground Only
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COMPUTER PARTS GALORE

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NEW YORK RESIDENTS (716) 343-6133

TERMS: Minimum order is $10. For orders less than $60, add $5 shipping & handling for UPS Ground delivery or $10 for UPS 2nd day air. Orders over $60, add 5% for shipping & handling for UPS ground. 10% for 2nd day air. COD orders add $2.50 to above fees. New York residents add proper sales tax. COD payment must be cash, certified check or money order. Phone and mail orders can pay by Visa, MasterCard, Amex., or COD. We accept personal checks with mail orders, but allow two extra weeks for processing.

SEEDS

The famous APPLE-SEED and APPLE-SEED II are the books that see all, tell all on the various APPLE clone motherboards and peripherals. They are well worth the $12.95 that we are asking. And KOSMIC has been at it again on IBM clone motherboards and peripherals and has composed the one and only "BIG BLUE SEED". It goes into greater detail on a smaller number of motherboards and peripherals (over 20 and growing) and will help you to build many of them at a saving.

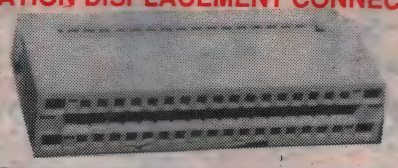
APPLE-SEED I (Clone Motherboards)..... ....$12.95
APPLE-SEED II(over 75 clone plug in cards for II+,IIe) $12.95
BIG-BLUE SEED(Over 100 hundred clone cards..... ....$14.95

TRANSFORMER $19.95

This isolation transformer has 4 120 volt windings, each separate, and so can be used as a step-up or down unit. In addition each winding is tapped at 105-110-115-120 for voltage adjustment. The unit is good for 250 watts(2A at 120 V or 1A at 220 V).....$19.95

RIBBON CABLE CONNECTORS (IDC)

INSULATION DISPLACEMENT CONNECTORS



DB STYLE (D-SUBMINIATURE)

PUT NUMBER OF PINS WHERE "XX" IS TO FORM PART NUMBER

			9	15	25	37
SOLDER CUP	MALE	DBxxM	75	85	1.10	1.60
	FEMALE	DBxxF	80	90	1.15	1.65
RIGHT ANGLE	MALE	DBxxMR	1.10	1.35	1.75	2.25
	FEMALE	DBxxFR	1.15	1.45	1.85	2.35
RIBBON CABLE	MALE	DBxxIDCM	1.95	2.25	2.50	3.95
	FEMALE	DBxxIDCF	2.25	2.49	2.49	4.50
HOODS	METAL	MHOOD	.99	.99	.99	1.25
	PLASTIC	PHOOD	.49	.49	.49	.59

PIN HEADERS

	10	20	26	34	40	50
SOLDER PIN MALE S	.45	.65	.85	1.25	1.50	2.25
SOLDER PIN MALE RA	.60	.75	.95	1.35	1.50	2.50
RIBBON FEMALE	.90	.90	1.25	1.45	1.80	1.99
RIBBON CARD EDGE	1.50	1.95	2.35	2.25	2.50	3.50

FLEA CLIPS 12 FOR $2 (SHORTING BLOCKS)

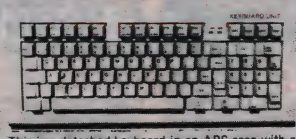
CENTRONICS 36 PIN	
RIBBON MALE	2.95
RIBBON FEMALE	2.95
SOLDER MALE	1.95
SOLDER FEMALE	1.95

EASY TO GET SNAPPABLE HEADERS	
40 PIN S	.95
40 PIN RA	1.35
80PIN(40x2)S	2.25
80PIN(40x2)RA	2.75

APPLE IIE® DETACHED KEYBOARD

A GEM of a keyboard, in a nice beige ABS case. Lets you build an IBM look-a-like that runs like a IIE with 2 drives in case using our $69.95 case on this page. This KB is fully IIE compatible, with all functions.....

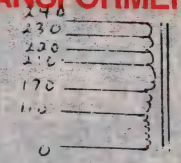
MAK II ACCUFEEL KEYBOARD



This is a detached keyboard in an ABS case with a 6" curly cord to connect ot to 6502 based machines. It used a serial data format for error free transmissions down the curly cord with a serial to parallel converter board on the end that is fully 6502/ Apple compatible. Has auto repeat, beep, no beep. 10 user programmable macros, 50 preprogrammed macros, auto line number.

LINE ADJUSTING AUTOTRANSFORMER

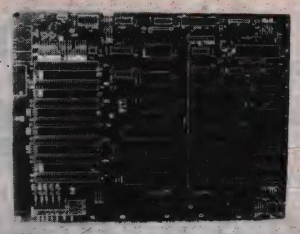
$29.95



This 1400 watt autotransformer is tapped at 110-120-170-220-230-240 volts and can be used for step-up or down or line voltage adjustment. Rated at 14A at 120V or 7A at 220 Volts it is especially good for operating European items in the USA or vice-versa.....$29.95

DISC DOUBLER $5.95

APPLE IIe CLONE MOTHERBOARD

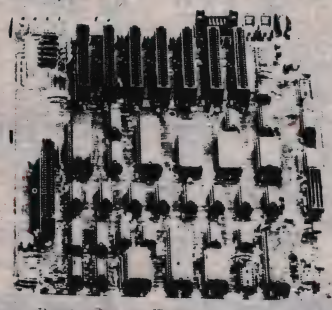


100% IIe compatible motherboard, for those who wish to build a clone of the ever popular APPLE IIe. It is a reverse engineered copy with no infringements on it. The gate array custom IC's are new designs that work-a-like but do not violate any copyrights. We do not sell the software but you can buy a IIe upgrade kit and install it on the board. You can not remove the gate array chips to install custom boards as they are not the same as Apple's ones, but this is not a problem with any plug in board as it is 100% hardware and software compatible.

MOTHERBOARD WIRED WITH 64K

$199.00

Yes this is a copy of the ever popular IIe computer, it has no software on it and the custom gate array chips are brand new designs that do not infringe at all. The board is 100% software compatible and 100% hardware compatible. It will not operate with add-ons that require the removal of the gate array custom IC's as they differ in pinout. It will operate upgrade software that can be bought at any dealer, and the original software. We do not suggest you make and sell clones, just make one for you to use at home and no-one will bother you.



IIe EXT 80 COLUMN CARD

A great card that adds 64K and 80 columns to the IIe. Lets you have wide screens and 128K of RAM on call

$45.00

Bare PCB and data
Custom IC set (3)...$49.95
Keyboard Encoder.$14.95
Character Gen $14.95

ABS PLASTIC CASE

$49.95

This case is a nice fit for our motherboard, keyboard, and power supply. Please tell us if you wish IIe or II+ (Numeric or non) cutout.

please specify II+ or IIe case style

SCOPE PROBES

1X	10X
DC-10Mhz	DC-100MHZ
35ns	3.5ns
55Pf + I/O cap	Nominal 16Pf
1 Meg Ohm I/P	10Meg ohm
600 V(AC+DC)	

APPLE PCB

We ran out of the APPLE ADD-ON Bare PCB and had to go to our supplier to get a real deal from him so we could sell more boards. But we could not get a good enough price to keep the sale prices as we were buying fresh stock, but we asked him for a real deal and we kept the price rise to a minimum.

3 FOR $13.00
Disc, 16K, 80 Col, 80 Col SS, RS232, Communications, Sprite, 13/16 Disc Z-80,

2 FOR $12.00
Super Serial, IIe Ext 80 Column 128K, SSM Modem,

2 FOR $17.00
Applacard, 256K Appla Add-on, Eprom,Grappler, 9 Voice music RGB, Prototype(L or S) Sam, Time II, Thunder Clock,

KEYBOARD

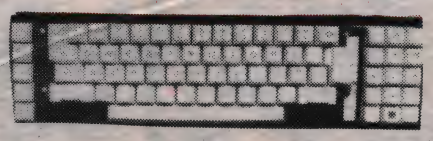
This keyboard fits our case, and comes in both the IIe and II+ format(Numeric or non) as you require. The II+ types have 88 pre-recorded basic commands and other MACROS for you ease of use in programming.

IIe.....$54.95
II+(Num).$59.95
II+(Non).$54.95

PARTS PARTS

0.1 Mono caps, 0.2"	$0.10	100Ns delay line	$6.95
0.1 Mono caps, 0.1	$0.12	7 Ns delay line	$9.95
50 Pf trimcap	$0.75	62 Pin edge conn	$2.00
2-3" speaker	$1.50	50 Pin edge conn	$1.50
RCA jack, PC type	$0.49	5 Pin DIN conn	$1.50
APPLE power set	$3.50	8 Pos DIP switch	$1.00
6 pin row power set	$1.49	MEGABOARD reset Sw	$2.49
square power set	$2.49	4.7Kx6 SIP	$0.69
MPSA13	$0.49	4.7Kx8 SIP	$0.99
2N4258	$0.75	1Kx7 SIP	$0.59
2N3904	$0.29	1KX8 SIP	$0.59
2N3906	$0.29	2.2Kx9SIP	$0.79
2N2222	$0.35	10Kx9 SIP	$0.79
2N2907	$0.39	33 Ohm DIP	$1.49
MPSU51	$1.00	4.7K DIP	$1.49

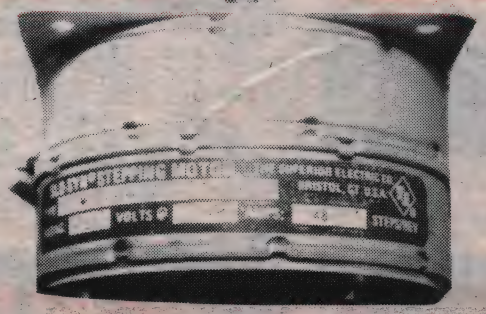
ASCII KEYBOARD



$19.95

This is a really good deal. This keyboard came from AES Data Inc, one of the largest makers or word processors in the world. They paid over $100.00 each. Their loss is your gain. The keyboard uses a dedicated micro for 5V operation and has HALL effect switches, the worlds most reliable. Made by Microswitch. Fully sculptured keytops in beige. With full data. Has a unique program thst makes both serial and parallel data. Proper typewriter pattern for instinctics use.

DC STEP SERVO

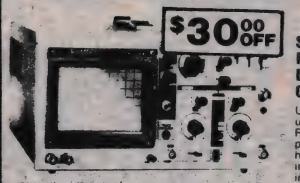


A high qualit DC step servo motor for the robot freak. 15V at 0.49 Amps, 7.5% per step. Good torque, Brand new with data sheet.

$6.95 2/$10.00

RAMSEY

THE FIRST NAME IN ELECTRONIC TEST GEAR



Save $30 on the RAMSEY 20MHz Dual Trace Oscilloscope

Unsurpassed quality at an unbeatable price, the Ramsey oscilloscope compares to others costing hundreds more. Features include a component testing circuit for resistor, capacitor, digital circuit and diode testing • TV video sync filter • wide bandwidth & high sensitivity • internal graticule • front panel trace rotator • Z axis • high sensitivity x-y mode • regulated power supply • built-in calibrator • rock solid triggering

Was $399.95 NOW ONLY $369.95 high quality hook on probes included

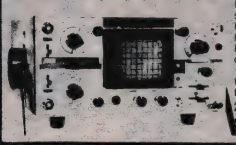
NEW 35 MHz DUAL TRACE OSCILLOSCOPE

A heavy duty and accurate scope for service as well as production use. Features include • wide frequency bandwidth • optimal sensitivity • extremely bright display • delayed triggering sweep • hold off • ALT trigger • single sweep • TV sync • 5X magnification • XY or XYZ operation • HF/LF noise reduction

3500 Dual Trace Oscilloscope
$499.95 includes 2 high quality probes

ALL OSCILLOSCOPES INCLUDE 2 PROBES

NEW 15 MHz DUAL TRACE PORTABLE OSCILLOSCOPE



Ideal for field/bench applications, this scope can display up to 15 MHz signals. Internal battery pack allows up to 2 hours operation on a single charge. Features include • built-in battery charger • 5X horizontal magnification • high brightness CRT • front panel trace rotator • internal rechargeable battery pack

2500 Portable Oscilloscope
$449.95 includes 2 high quality probes

CT-90 9 DIGIT 600 MHz COUNTER

The most versatile for less than $300. Features 3 selectable gate times • 9 digits • gate indicator • display hold • 25mV @ 150 MHz typical sensitivity • 10 MHz timebase for WWV calibration • 1 ppm accuracy

$149.95 wired includes AC adapter

CT-90 kit $129.95
OV-10 1 RPM oven timebase 59.95
BP-4 nicad pack 8.95

CT-125 9 DIGIT 1.2 GHz COUNTER

$169.95 wired includes AC adapter

BP-4 nicad pack $8.95

CT-70 7 DIGIT 525 MHz COUNTER

Lab quality at a breakthrough price. Features • 3 frequency ranges each with pre amp • dual selectable gate times • gate activity indicator • 50mV @ 150 MHz typical sensitivity • wide frequency range • 1 ppm accuracy

$119.95 wired includes AC adapter

CT-70 kit $99.95
BP-4 nicad pack 8.95

CT-50 8 DIGIT 600 MHz COUNTER

$169.95 wired

CT-50 kit $139.95
RA-1 receiver adapter kit 14.95

HARD DRIVE CABINET

This is a very nice case for your hard drive, it has space for 2 1/2 height drives with cover-up bezel for one only. The back is cut for fuse holder, AC plug, switch, connector panel and 3 1/2" AC or DC fan.

We also have some switching power supplies for one or two drives. The 40 Watt unit has 5V-4A and 12V-1.5A and the 60 watt one is 5V-7A and 12V-2.5A.

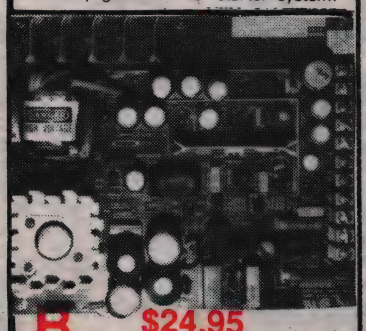
40 W $39.95 **60 W $59.95**

SWITCHING POWER SUPPLIES

A

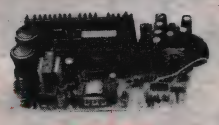
$35.00

One of the nicest open frame IBM type switching power supplies we have ever seen. Came from the defunct NCR IBM compatible, runs the whole thing, has +5V-7A, +12V-3A, -5, -12-¼ A. A very good unit for starter system.



B **$24.95**

The greatest 8" Drive supply we have ever found. Has 24V-2.2A 5V-3A and -12V-.17A. All you need for a dual 8" Drive system. A switching power supply by ASTEC . .



C

$18.95

Another great deal from PARTS GALORE A small switching power supply that has +5v-4A, +12v-1A,-12v-1A,-5v-1A. All at the same time These cost Northern Telecom over $50.00 when they bought 10,000 of em. We got em when a subcontractor went belly up for 10% of what they paid and we are selling them for only..... .....$18.95

IBM COMPATIBLE BARE PC BOARDS

All these bare PCB come with a parts list , placement diagram showing where they go. We do not have circuit diagrams unless indicated. The EPROMS and PROMS are for sale as is certain non-infringing software for use with the boards.

HEXPACK A workalike copy of the famous AST SIX-PACK , WITH UP TO 384K RAM, Clock, Calendar and Serial and Parallel ports. 100% IBM and AST compatible, complete with schematic, parts placement and assembly data.....$24.95
Optional complete manual and software diskette.....

MONTE CARLO One of the best multifunction cards we have ever seen. This one takes either 64K or 256K RAMS in any combination for up to 1 Mbyte on board. (640K DOS accessble, balance subroutine accessed) PLUS two game ports, Clock, Calendar and Serial and Parallel ports. Clearly an awe inspiring array of functionality on a single card. Complete with schematic, parts list and placement diagram.....$34.95
Optional complete manual and diskette.....

COLOR GRAPHICS A workalike copy of the popular PERSYST color graphics card. 100% true to original and 100% compatible to IBM std. With assembly data.....$24.95

384K RAM only in close array. 384K of 64K RAM ideal for economy enhancement of system capacity. With all assembly data.....$16.95

512K Another very economical expansion card. Takes 64K RAM in close array. With all assembly data. $16.95

KRAM CARD We took a 512K card and rewired it for 256K RAMS. It now has four times the memory or 2 MBYTES. It closely follows the function of the popular JRAM card as all this type do, and also shares partition ing parameters to the extent that it will run the JRAM software or other similar programs. RAM Disc Drives are very easy to delineate. With all assembly data...$34.95

PROTOTYPE 100% WW holes with DB-25 and DB-9 footprint on end.....$24.95

PROTOTYPE+RAM This unique card has a memory array at one end. 36 16 pin sockets are placed in copper on board with all bussing in common, but with CAS, RAS etc brought out row by row and column by column so that either 64K or 256K RAMS can be quickly wired in. A 0.1 bypass cap is on each IC as well. The remaining ¾ of the board is 100% WW holes with a DB-25 and DB-9 footprint on one end.....$24.95

EXTENDER When you need to service a card with power on it is very hard to get at the board to trace signals etc so we made this little gem that lifts the whole thing up by about 6" for easy access.....$19.95

RS232 A ¼ size card with two serial ports on board. $9.95

PARALLEL PRINTER A ¼ size card with a complete IBM std centronics printer porton board, with all data.....9.95

GAME CARD A ¼ sized card with two game ports. 9.95

DISC + PRINTER Runs a parallel centronics printer and 1-4 drives. With all data..$14.95

MONO GRAPHICS A workalike copy of the very nice HERCULES mono card, with static RAM on board. With all assembly data.....$24.95

DISC CONTROL A ¼size card for the short slot and portable use. 100% compatible, 1-4 drives complete with assembly data.....$12.95

DISC CONTROL A ½sized card for regular slot that is 100% compatible, runs 1-4 drives.....9.95

DE-TERMINATOR

This is a unique board for cleaning up data line noise in the clones. This noise is caused by the 2 layer boards that most clones use. IBM uses a 4 layer board with much better noise suppression. Each data line is held 2.7 volts with an R-R network that stops all + or- spikes from causing those crashes that often bother the clones. Especially helpful for use with TURBO motherboards or TURBO plug in boards.

FOR ANY SLOT
TERMINATOR BARE PCB..$18.95
TERMINATOR, WIRED.....$29.95

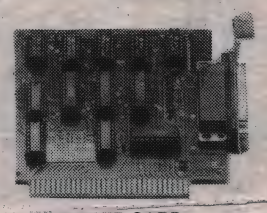
NEC 8087

As you know NEC has been hard at work making a work-a-like copy of the 8087 math co-processor chip. Rumor has it that it will have enhanced capabilities over the 8087 in the same way the V-20 is enhanced over the 8088. We are getting some in in June and can sell them for only $119.00 each for the 5 Mhz version. Further data available in June as well as data sheets. Orders are on a first come first served basis. NO COD's

NEC 8087.....$119.00

DISK CONTROLLER CARD

RS-232 COMMUNICATION CARD



PRINTER CARD

NEW 640K XT COMPATIBLE 8 SLOT LAZY CARD

A board that we have fully stuffed and wave soldered so you just add the IC's and go. You save all the solder time. Buy one now!!!!

- 64K/128K EPROMS JUMPER SELECTABLE
- WILL RUN ANY COMPATIBLE BASIC
- IBM POWER PLUG COMPATIBLE
- SAME PCB SIZE AS IBM XT

$149.95

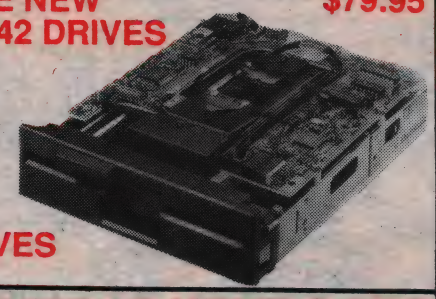
FULLY WIRED AND TESTED WITH BIOS

- 8088 16 BIT MICROPROCESSOR
- 8087 MATH PROCESSOR. OPTIONAL
- 8 IBM COMPATIBLE EXPANSION SLOTS
- 4 DMA AND TIMER CHANNELS

WE'VE GOT THE NEW QUMETRACK 142 DRIVES

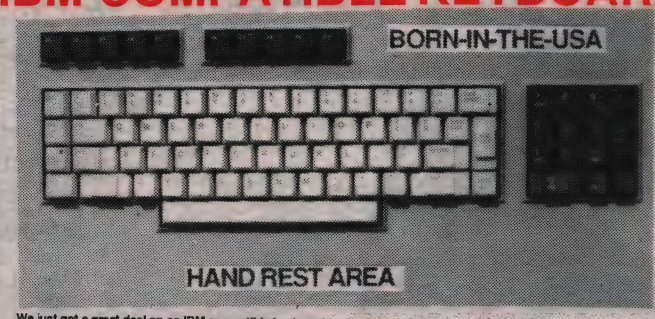
$79.95

- Double Sided Double Density
- ½ Height • 48 TPI
- New Quiet Operation
- IBM Compatible
- New Front Panel Design



REAL IBM DRIVES

IBM COMPATIBLE KEYBOARD



We just got a great deal on an IBM compatible keyboard made in the USA by MAXISWITCH INC for a major OEM. This OEM decided to exit this field due to the serious drop in prices caused by the clones. He sold us these keyboards for less than 10% of the $120.00 he paid for them, letting us sell them to you at a real deal. They are well designed for easy use with a built in wrist rest for non-fatigue typing. Has all IBM keys with the function on the top as shown. Very good feel, American quality, not the Taiwan El-Cheapo sold all over for $50-$70.....$39.95

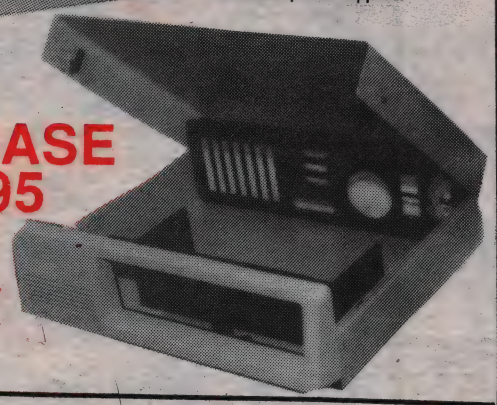
$39.95

WITH AT ASPECT $59.95

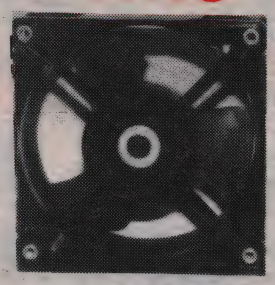
A nice case that looks like the AT but is cut for the XT in both height and width. Fits backswitch power supplies.

IBM CASE $49.95

HEAVY STEEL



FANS



Has your IBM look-a-like system started to make funny grinding noises as the Taiwanese fan bearings start to run out of oil, if you have oil-no problem, but unless you do something the neighbours will soon call the police. We got some nice American fans, in 3" and 4¾" sizes 110 Volt new and like new from equipment (checked)

3" NEW	$14.95
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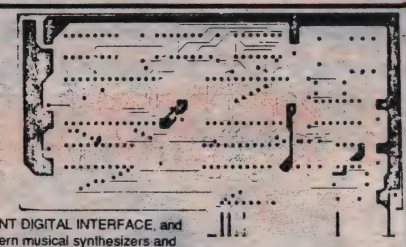
3" USED	$ 9.95
4¼" USED	$ 9.95

MIDI MUSIC BOARD

Apple wired PCB	$99.95
IBM wired PCB	$129.95
Apple bare PCB	$14.95
IBM bare PCB	$19.95

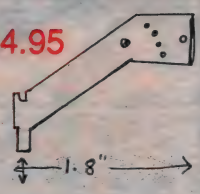


MIDI is an acronym for MUSICAL INSTRUMENT DIGITAL INTERFACE, and is a powerful new standard interface for modern musical synthesizers and other new equipment. All the Japanese makers and most in the USA have conformed to the standard.
The MIDI sourcebook is a valuable source of data for the APPLE and IBM MIDI user. There are many starter programs and listings of places to buy and how to build, fix, make, etc for the MIDI-MAN. Pls specify APPLE or IBM when ordering.

$19.95

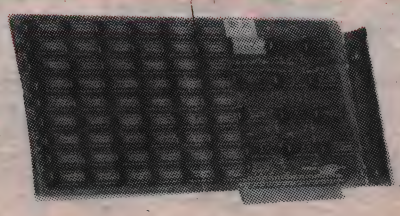
BAR CODE WAND HEAD

$14.95



This is a real deal for the point of sale player. A complete guts for a bar code wand. It has the matched set of IR LED and Schotkky diode IR detector in a fiber optic case that takes the input and output through a special IR transparent head that is black to visible light to stop interference. Complete with data sheets and std bar code and instructions how to interface to an IBM or APPLE via the serial port. A good deal..... $14.95
IBM software package..... $ 9.95

MONOCHROME GRAPHICS WITH PRINTER PORT CARD



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* Refunds carry a 15% restocking fee
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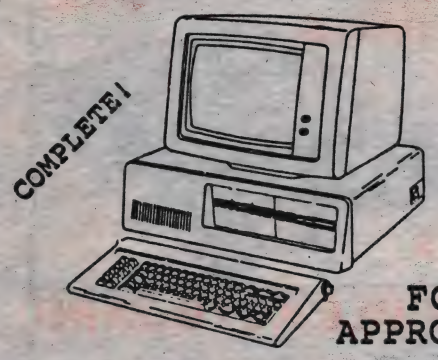

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* colorgraphics or monochromegraphics card
* amber or green, TTL or composite monitor
* slide-out pc case
* 135W hard-disk ready power supply
* 5150 style keyboard
* software selectable clock speed: 4.77 MHz or 7.4 MHz turbo speed
* 8 card slots * 640K RAM
optional math co-processor
* fully tested * fully compatible
* MS-DOS 3.1 w/manual

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* two DSDD 5¼ half-height floppy drives
* colorgraphics or monochromegraphics card
* amber or green, TTL or composite monitor
* slide-out pc case
* 135W hard-disk ready power supply
* 5150 style keyboard
* 8 card slots * 640K RAM
* optional math co-processor*
* fully tested * fully compatible
* MS-DOS 3.1 w/manual

TURBO AT SYSTEM $2295

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* 640K RAM expandable to 1 Meg
* 8 MHz speed
* colorgraphics or monochromegraphics card
* standard AT footprint motherboard
* floppy and hard-drive controller
* 200W AT power supply
* parallel/serial card
* amber or green, TTL or composite monitor
* standard AT look-alike case
* on-board clock calendar
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* optional 80287 math co-processor*
* MS-DOS 3.1 w/manual

ADD-ONS...MISCELLANEOUS:

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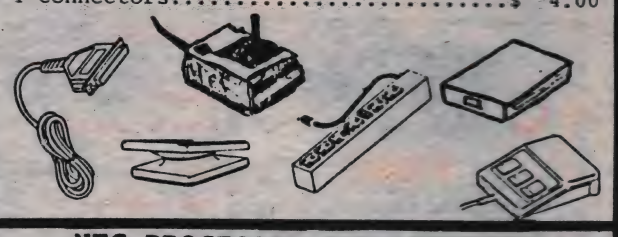
parallel printer cable	$ 12.00
modem cable	$ 13.00
keyboard extension cable	$ 14.00
RGB extension cable	$ 14.00
Logimouse	$ 95.00
Mouse Systems w/PC Paint+	$159.00
AB switch box	$ 39.00
Mini vacuum	$ 21.00
swivel monitor stand	$ 14.00
AC surge suppressor	$ 14.00
diskettes.....5¼ (box/10)	$ 10.00
diskettes.....AT (box/10)	$ 30.00
diskette storage boxes.....10 unit...	$ 2.25
.....35 unit...	$ 7.00
.....75 unit...	$ 8.50
.....100 unit...	$ 12.50
Y-connectors	$ 4.00



NEC PROCESSOR REPLACEMENTS

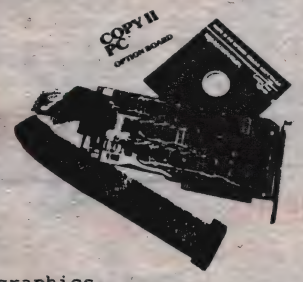
8086	5 MHz	$19.00
	8 MHz	$24.00
8088	5 MHz	$12.00
	8 MHz	$14.00

MATH CO-PROCESSORS

8087	5 MHz	$139.00
	8 MHz	$159.00

CARDS & BOARDS:

COPYIIPC Card $89.00



color graphics	$ 89.00
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576K memory upgrade/ØK	$ 49.00

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(All cards are FCC approved!)

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5150 style	$ 69.00
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composite, amber or green	$119.00
color RGB 640X200 (amber/green)	$319.00
Taxan 630 (640X400)	$569.00
Taxan 640 (720X400)	$649.00
NEC Multisync (EGA/CGA/TTL)	$729.00
Taxan 555 card..(630/640 monitors)	$209.00
VEGA Multisync card..(NEC monitor)	$459.00

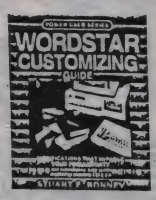
ASK ABOUT HARD DISK DRIVES

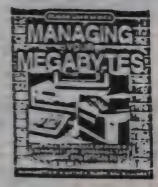
RAM CHIPS

64K/150ns	$14.00/set-9
256K	$36.00/set-9

BOOKS

WORDWARE PUBLISHING, INC.





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Illustrated Wordstar	$17.95
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Illustrated Lotus 1-2-3	$15.95
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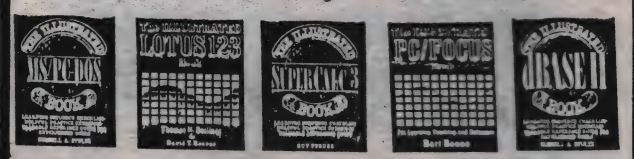
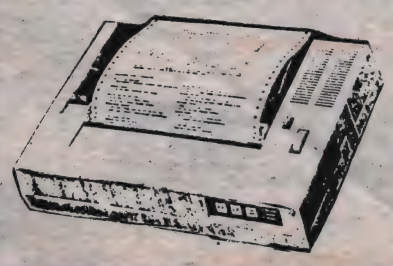
Illustracted C Programming	$17.95
Illustrated MS/PC DOS	$13.95
Managing Your Megabytes	$17.95
Communications Handbook	$11.95
The Complete pfs: Book	$13.95

and more..all selling below retail!



CANON PRINTERS



Mdl A40 (140 cps/80 col)	$269.00
Mdl A50 (180 cps/80 col)	$389.00
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Mdl BJ80 (220 cps bubble jet)	$479.00

* self test mode * bi-directional
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NOW PLUG ANY MONITOR INTO THE PC POWER SUPPLY

End the irratation of having to turn your monitor off separately from your computer. Simply plug this adaptor into the monitor socket and plug the monitor into the adaptor, then one switch will handle monitor and computer. No more leaving the monitor on all night!

CLASSIFIED

CLASSIFIED INFORMATION

The classifieds are for **Pre-Owned Items & Software ONLY.** New equipment, Services, etc. must use regular Display space.

Instructions

In order for us to keep the ad rate low and insure accuracy, it is necessary that the following procedures are followed.

1. Type or print your ad legibly on a plain sheet of paper. Ads received that are difficult to read will be returned.
2. Write the desired category at the top of each ad. Please refer to the index, this page, if a category is not indicated, ad will be placed in the Miscellaneous section.
3. If more than one ad is submitted, use a separate piece of paper for each ad, making sure your complete name and address is at the bottom of each ad.

CLOSING DATE — 2nd Monday of the month. Example: Ads received by the 2nd Monday of July will appear in the September issue. **Due to our low rates, you cannot change, cancel or receive a refund on classifieds after they are typeset.** In most cases, ads are typeset within a week after they are received.

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Subscribers: 25 cents per word. $5.00 per ad minimum charge. The first two words (if underlined) will be set in bold face at no additional charge. Bold face or all cap words thereafter will be fifty (50) cents per word. Special bold headings, partial lines, open space or leader dots are:

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Maximum of 15 characters per line

Non-subscriber rates are double all rates listed above.

REPEAT ADS

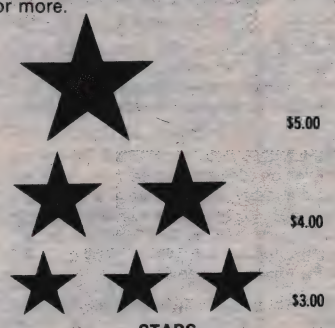
Ads running more than one time. A repeat ad will be coded at the end of the ad with month the ad started and issue ad ends. Example: 8-160. Ad started Aug. ends 160 issue or January. NOTE: Please check to make sure your ad has been correctly coded.

PROOFS

Due to low classified rates a free checking copy or tear sheet cannot be sent if proof of insertion is desired, please send $3.00 extra.

PHOTOS

A photo will draw attention to your ad. Photos are $7.00 per column inch. Please send in B/W photos, preferable 4x5's cropped horizontally. Include your name and address on the back of **each** photo. If photo looks like it is more than one inch send in money for two inches or more.



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Have a special piece of equipment to sell? Reducing the price of an item and want to attract attention to that fact? Take advantage of our low price "star" attention getters.

It's a fact...unusual "artwork" in or above an ad draws attention to that ad and the reader retains interest in that product longer.

Get Response Quicker with "Stars" above your ad. Above is the rate for different sizes. Just mark "stars" and the price of the one you choose above your ad copy and we'll take care of the rest. Be sure to include the cost with your ad payment.

CS-ABREVIATIONS

add-post . . . . . add postage
add-post-AP . . . add postage, all prices
FC . . . . . Freight Collect
MBG . . . . . money back guarantee
PP . . . . . postage paid
SASE . . . . . send self-addressed stamped evelope for check return or information requested
10 DRP . . . . . 10 day return privilege
CCR . . . . . check clearance required

EXAMPLES OF STYLES:

Normal

PDP 11/03 COMPUTER
Complete **OPERATING SYSTEM** with RT-11 system software plus basic. Brand new October '78. Sell complete at $7,000, or separate at:
11/03 Computer $900
Dual RZ-1 disc $1,000
32KB memory $2,800

PDP 11/03 COMPUTER. Complete operating system with RT-11 system software plus basic. Brand new October '78. Sell complete at $7,000 or separate at: 11/03 Computer $900, Dual RX-1 disk $1,000. 32KB memory $2,800. VT-52 video $1,500, GE Terminet 30 printer $800. Intertube video terminal $400. **John Doe,** POB 1234, Somewhere, USA 00000. 123-456-7890.

10 Point Centered Head

PDP 11/03 COMPUTER

Complete **OPERATING SYSTEM** with RT-11 system software plus basic. **Joe Doe,** POB 1234, Somewhere, USA 00000, 123-456-7890.

Leader Dots

Intertube video terminal $400
Joe Doe, POB 1234, Somewhere, USA 00000. 123-456-7890.

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Are We CRAZY or What Sale

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II+/IIe parallel interface $40
II+/IIe serial Bd $45
Disk II controllers . . . . . Call
IIc drive adapter $15
16k Language Bd. $35
5 Amp power supply $45
II+ 80 column Bd. $45
Disk Drives . . . . . Call
IIe Keyboards $45
Disk II cases $12
IIc parallel interface $60
IIe CPU $500
II+ CPU $275
Lazer 128 . . . . . Call
Color monitor NEW $145
Monochrome . . . . . $65 up
Shreve Systems, 318-865-6743 4-9pm CST, 845 Lark Ave., Shreveport, LA. 71105. COD-VISA/Mastercard accepted. 7-79

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Attn: Coconuts, Late Model
64k extended Basic, 2 disk drives, cassette loader only $375. Are we CRAZY or what!!! **Shreve Systems, 318-865-6743** 4-9pm CST.

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All used products over $100. Buy/sell through nationwide listing service. **NO CHARGE** for buying direct from owner. **NO RISK** for sellers - 6% commission when successful. Open 24 hours if you have a touchtone phone. **203-762-8677.** 6-79

Complete Portable Arod desktop system! Model 4 3DD (one external) 64k, printer interface selector, DWP210 and DMP120 printers. Modem I 32K model 100. $1650 + shipping. **Steve Pecoraro,** 5409 Gridley Way, Riverside, CA. 92505. **714-963-7440.** 6-78

For Sale: Seldom used/Tandy **Model 100 (32K), Disk-Video Interface,** Tandy carrying Briefcase, TTX press portable printer, DISK+, ROM+, numerous software e.g. Portable Accountant, Disk Buddy Ect. Firm $1,000 or Trade for IBM Compatible. **George, 1-213-560-2216.** 5-78

LNW-80 Computer: 48k, LNW 5/8-Doubler, Technical Reference Manual $275; with 2 drives newDOS80/v2.0 & DOSPLUS v3.5 $395; Fortran $40; Newscript word processor $40. **M. Bickerton,** 47 Birchwood Court, Tinton Falls, NJ 07724. **201-842-3762.**

LNW-80 Mod. 1 handles TRSDOS O/S **factory certified operational** MPI SDDS drive, 80-7 keyboard monochrome monitor factory case. **707-428-1195** eves. Will deal $580.7-80

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$$$$ We have a limited selection of Model I's, II's, III's, IV's, 12's, 2000. We give a full 90 day warranty. BUY—SELL—TRADE. **Godfather's Used Computer Syndicate,** PO Box 3037, 1154 W. SR 436, Forest City, FL 32714. **305-774-1111.** 6-82.

Model 16B 2-drive 15Meg harddisk, 768k Xenix Multi-User, Software development system, Cobol, Unify, Scripsit-16, $5500 or offer. **414-259-1657, Glenn Klein,** 7215 W. National Ave., West Allis, WI 53214. 7-79

Model II, 8 meg. disk, Daisywheel II printer, software— Scripsit, Accounts Receivable, Order Entry, Sales Analysis. Asking $1500. Also Model I Expansion interface with doubler $150. **Dean Carpenter, 404-925-5579.**

Models 12 & 4P Like new, $1200/$800, 2 drives per system + manuals. Model II keyboard $50. **516-599-5745.** 6-81

Power Supply Repair. TRS80 all models. $30 (including parts). If too badly blown or I can't fix, I'll return payment and supply within 1 week. Send payment with power supply, include return address and Phone #. **Orlando IDE,** 1046 W. Iowa Ave., #2, Sunnyvale, CA 94086. 7-80

Radio-Shack LVII printer, excellent condition w/extra ribbons, cables, paper & cover just $100 post-paid. **John Bay,** 253 Prado, Stockton, CA 95207. **209-474-1014.**

TRS80 MODEL 16. Will support UNIX and multiple terminals. Lightly used. Includes TRSDOS 2.0B, Scripsit & dictionary, Profile, Visicalc. Asking $4000. Call **Mr. Noah Flucard 904-795-2362.** 5-78

TRS-80 MODEL IV. Dual Disk drives. 64K. DWP410 letter-quality printer with tractor feed. SuperScripsit word processing software and Videotex telecommunications software. 300 baud modem. Complete system $1995.00 O.B.O. Call 305-784-6071 after 6 PM EST or write Sizemore, 703 Bermuda Rd., Cocoa Beach, FL 32931.

TRS80 Model 2 upgraded to mdel 12 to model 16, total 640k, 15 meg hard disk, second disk drive in three bay unit, two complete remote terminals, 300 baud modem, all manuals and software including Visicalc, Xenix, Scripsit, Videotext, compilters, etc. $2600. **Call 914-359-4789. 6-78**

TRS80 Model III, 64k, 2 disk drives, good working condition $350. **G. Porter,** Dept. of

CLASSIFIED ORDER FORM

Classified Dept., COMPUTER SHOPPER
P.O. Box F, Titusville, FL 32781

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Run under heading # _____
See Index This Page

(Please type or print)

INCLUDE 25-CENTS PER WORD FOR YOUR NAME AND ADDRESS

Name _____

Address _____

City _____

State _____ Zip _____

INCLUDE 25 CENTS PER WORD FOR YOUR NAME AND ADDRESS FOR SUBSCRIBERS AND 50 CENTS PER WORD FOR NON-SUBSCRIBERS.

(For additional words, use separate sheet of paper)

Remittance for $_____ is enclosed.
You may run my ad _____ issues.

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Math, Univ. of PA, Philadelphia, PA 19104-6395. **215-898-8467.**

Tandy 1000 640K 2DD, 10 mghd, HD control monitor, Managing your Money, Electric Desk, etc. Okidata 92 $2050. **Mike 817-756-3378.**

Tandy 1000 with 2 disk drives, color monitor. $800. **813-677-4523** after 5pm EST.

Tandy 2000 MS-DOS, 512K memory, VM-1 Mono Monitor, like new $800. **Len, 212-777-4353.**

Video/Disk interface for TRS-80, Model 100 (does not work with Olivetti), mint condition. Cost $799, sell for $450. **Jim, 203-482-4326** after 7pm EST.

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Wanted: Old computers. See section 188. **David Larsen** for details. 7-89

(103) TANDY SOFTWARE, PERIPHERAL

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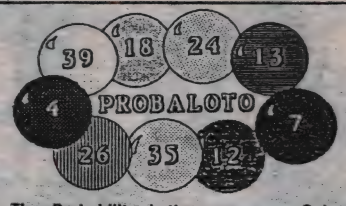
Survey-Boundary TRS-80/100 24k basic $29.95. Description $1. **P. Billings,** 12134 Bonnie Terr. Dept. CSD, Seminole, FL 33542. 6-82



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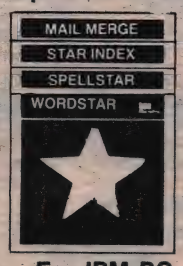

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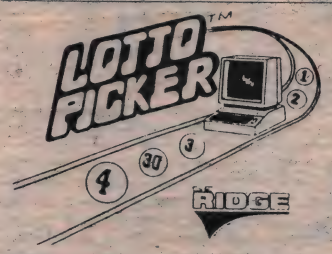

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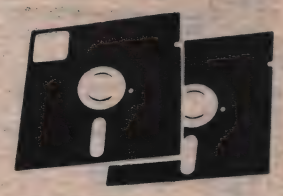

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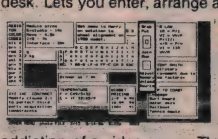

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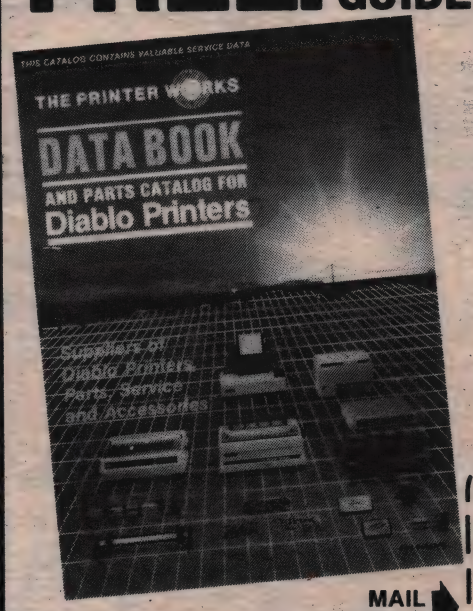

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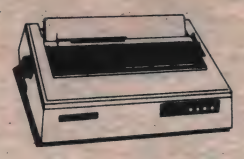

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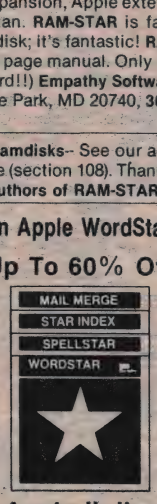

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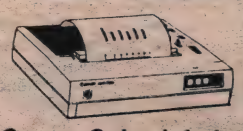

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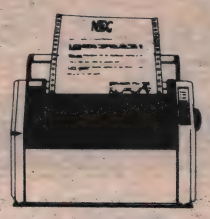

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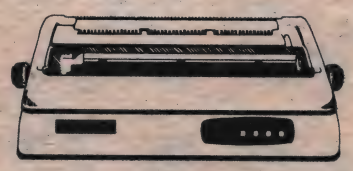

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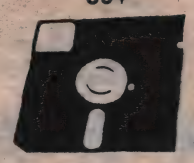

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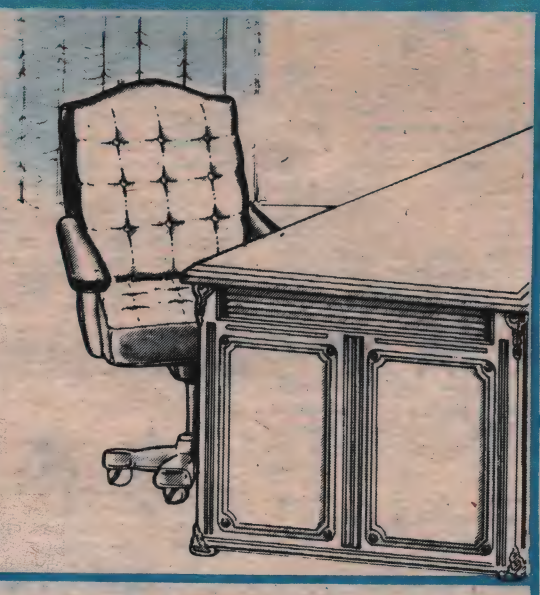

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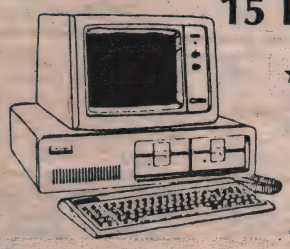

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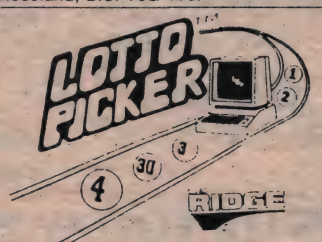

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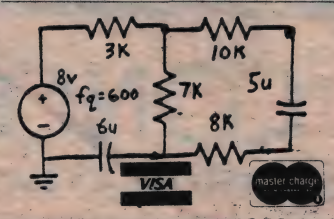

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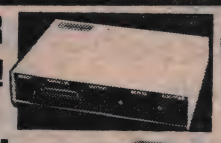

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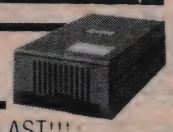

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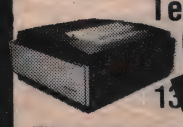

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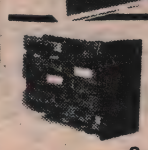

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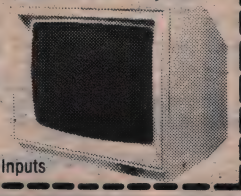

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The truth is many of our satisfied customers have discovered that our public domain and user supported programs are actually some of the best and most sophisticted software you can buy, at any price! The commercial retailers don't want you to know about us or our programs, but why pay hundreds of dollars more for software that won't do anymore than our $5.00 package. Here is a sample of our library by category.

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PC-Write 2.5 (#78) A full featured word processor that is faster than Wordstar.
TSCRIPT (#422) word processor for PC-JR only. Pascal source code included.
DICTIONARY (#378) Dictionary type spelling checker.
IV-ED (#415) Word processor - editor.
LETTERWRITER (#415) controls letter processing.

SCREEN EDITORS

FRED (#83) Screen editor similar to IBM's Personal Editor.
RV-EDIT (#190) Full screen editor from Bob Vollmer.
FOIL EDIT (#347) Full screen editor. Top to bottom and left to right.

TEXT PROCESSING TOOLS

PC-READ (#194) Program to determine clarity of text.
FOGFIND (#378) reverses writing complexity using the "Fog Index".
ROFFA 1.61 (#416) make beautiful text formats with this processing tool.
QPARSER (#419) Public Domain version of this famous system.
WORDSTAR AIDS (#379) collection of the most useful utilities for the Wordstar user.

DATABASE PROGRAMS

PC FILE III (#5) most popular database program from Jim Button.
U-MIND (#133) Fast hashing makes this a dandy database. (Intelligent database)
DATABASE OF STEEL 3.1 (#214, 215, 267, 268) Database spreadsheet and expert system from Potomic Engineering.
NEWBASE (#233) Menu driven database for the beginner.
PC-DBMS (#383) A relational database management system that provides on-line help and screen editing functions.
ELSIE EXPERT SYSTEM (#398) Artificial intelligence shell to build a custom knowledge-base.
PDS*BASE (#396) Complete hierarchical data base system master/detail or mother/daughter type.
CREATOR (#339) create, report, and sort makes this a super database management system.
INFOBASE (#340) Forms driven database management system similar to INFOSTAR.

DATABASES

BOBCAT (#247) Small business database. Excellent!
MFIND (#311) Database of over 2000 movies that can be searched in any category, or you can add your own.

SPREADSHEETS

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PC-PAD (#406) Spreadsheet and address book program written in basic.

SPREADSHEET TEMPLATES

LOTUS 1-2-3 TEMPLATES AND MACROS (#140, 141, 165, 257, 289, 301-304, 406, 414) Why spend hours of writing your macros when these are ready made? Modify them yourself.
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PC-VT (#286) VT-100 Emulation.
SYSCOMM (#338) Menu driven system allowing unattended file transfer.
RBBS 12.2 (#212) Become a SYSOP and start a bulletin board.
FIDO NET (#333) Bulletin Board System. Perhaps the easiest to run.

MATH AND STATISTICS

EPISTAT 3.1 (#88) Statistical analysis of small to medium-signed data samples.
KLP 1.9 (#332) Kinetics linear programming system.
MATH PAK (#394) Programs to teach and accelerate some math functions. BASICA

LANGUAGES

CHASM 2.13 (#10) Cheap assembler with tutorial.
LADYBUG 1.0 (#94) Logo like program.
XLISP 1.4 (#148) Lisp language interpreter.
LAXON & PERRY FORTH (#263, 264)
MVP-FORTH (#31, 32) Two disk set of Mountain Valley Press Forth.
3 FORTHS (#352) To modify or expand your own forth language. MVPFORTH, FORTH-H and SEATTLE Computer's Forth.
PROLOG & UNIFORTH (#417) Complete with editor and documentation.
SNOCREST BASIC (#409, 410) two disk set. Real basic interpreter with manual. Can be used with a multi-user system.
TBASIC (#381) Tiny basic. A limited subset of BASIC. Could be placed on a chip.

PASCAL SETS

PASCAL TOOLS (#130, 133) Volume 1, 2 and 3 with source code from the famous book.
TURBO PASCAL-TOOLS (#248, 279, 292, 298, 324, 351, 353, 364, 365, 366, 375, 392) 12 volumes of tools and utilities written especially for turbo Pascal. The most extensive collection around!

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SYSMENU (#250) Build a menu driven menu system. Excellent for hard disks.
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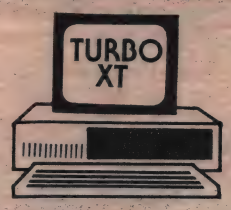

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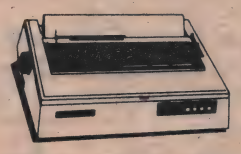

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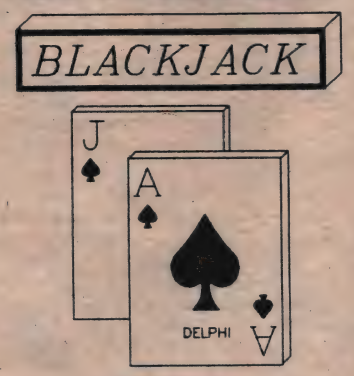

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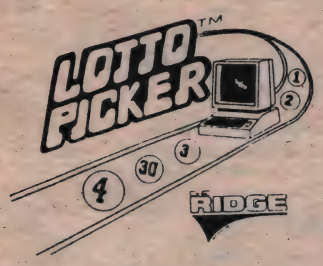

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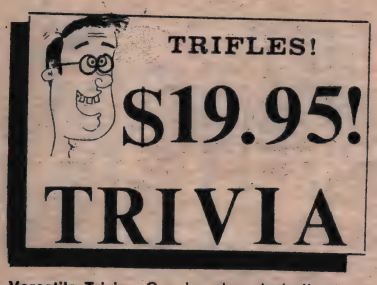

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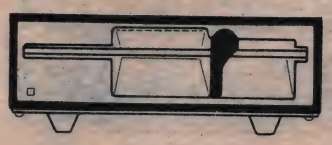

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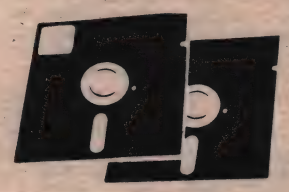

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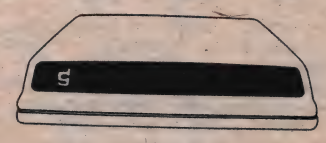

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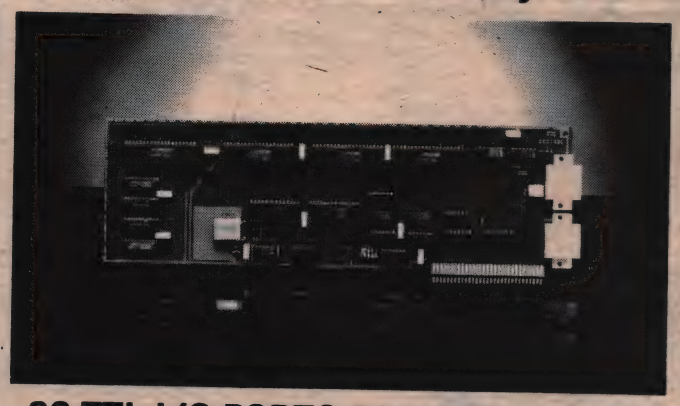

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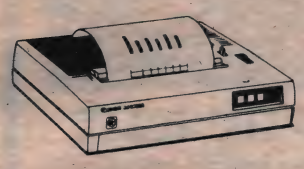

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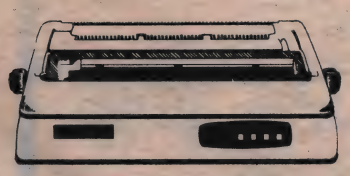

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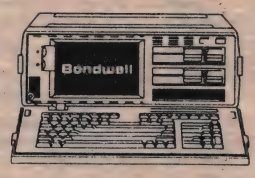

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Paying $5.00 per pound for scrap tantalum capacitors. Any amount, fast payment! Ship: **Sciuto,** 103 Saratoga St., Lawrence, Mass. 01842. 9-79

(118B) OSBORNE SOFTWARE, PERIPHERAL

100's of FREE OSBORNE software programs available from **PUBLIC DOMAIN USERS GROUP.** For information send large SASE to **Public Domain Users Group,** Box 1442-C8, Orangepark, FL 32067. 5-78

INVESTORS! Use your Osborne and our Technical Analysis program to improve your market knowledge and trading advantage. $99.95 or $199.95. Compu/CHART2 offers user-assigned Moving Averages, Point/Figure, Oscillators, Volume, Comparisons, printouts, interpretation guildelines, more! **NewTEK Industries,** PO Box 46116, Los Angeles, CA 90046. **213-874-6669.** 7-80

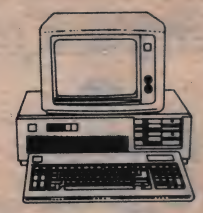
(120) MS/DOS COMPUTERS FOR SALE

★ ★ ★

IBM Compatible Computer
$349

Well, almost IBM compatible. **Hyperion**—256K, built-in modem, portable, built-in hi-res screen. Great for Word Processing --Runs WordStar. We also have some broken ones for parts. **202-944-5200.**

IBM AT Compatible



Leading Edge M—H
$2395

30 Meg Hard Drive, 1.2 Meg Floppy Drive, 1 Meg RAM, Hi-Res TTL Monitor, AT Style Keyboard, Clock/Calendar, 6 AT Expansion Slots, 2 8-Bit Slots, MS-DOS 3.1, GW Basic. 100% Satisfaction Guaranteed! For more information on these and other super bargains, see ad index for full page **BCE** display ads bordered in red. **BCE 1-800-545-7447.**

NCR Computers The Better PC. Why buy an unknown brand when you can buy the best for about the same price? PC4, 2 drs., 256k, mono monitor, $1350; w/10/20MB HD $1900/2150; PC4i, 2 drs. 256k, mono monitor, $1475 w/10/20MB HD $2100/2300, color add $300; PC6, 2 drs., 256k 4.7/8.0 MHz dual speed, monochrome $2300 w/20MB HD $2750, Hi-Res Color add $850; All w/DOS, BASIC, Tutors, warranties and documentation. All add-post. **S. Mills,** 4615 Orleans Blvd., Jefferson, LA 70121, **504-733-9611.**

PC Compatible, 256k B RAM, 2 Floppies 1 parallel port, tilt swivel green monitor, MS DOS 30 day warranty $1100. Guaranteed compatible. Add $300 for Okidata ML83A Printer. **Paragon Computer Corporation, 203-525-0389.** 5-78

PC-XT, Compatible, 256K B RAM, 1 Floppy, 20 mB hard disk, 1 parallel port, tilt swivel green monitor, enhanced keyboard, MS DOS, 20 day warranty. $1900. Guaranteed compatible. Add $300 for Okidata MS83A Printer. **Paragon Computer Corporation, 203-525-0389.** 6-78.

Slicer system for Sale. 8MHz Slicer CPU board, CPM86, BIOS/Monitor; 256k Memory Expansion with RTC, Serial Port, XEBEC 1410 HD Controller, 20 MB disk drive, Slicer Enclosure with 135W supply, Dual Floppies in sep. cabinet. Boards work and are checked out. I ran out of GAS before integrating Hard Disk and Controller. System is worth $1850 if I add & test HD and controller components. $1200 to you as is. **Bill Beckett,** 77 Clinton St., Framingham, MA 01701 or call **617-879-8066** evenings.

Sperry PC-IT, AT compatible, 1 mB RAM, 1-1.2 mB Floppy, 1-44 mB hard disk, enhanced keyboard, green monitor, 2 parallel ports, 2 serial ports. MSDOS 3.1, 6 7 & 8 mhz operation. Mint, full Sperry Warranty. $4000.00. **Paragon Computer Corporation (203) 525-0389.**

(120A) MS/DOS COMPUTERS WANTED

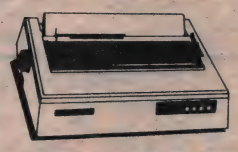
LEADING EDGE

Leading Edge Word Processor
$39
For IBM and All Compatible Systems

"This program is a gem, and at $250, it's also a gem of a bargain!" --PC Magazine, January 28, 1986. Software Digest, an independent publication which accepts no advertising, reviewed and rated 25 word processing programs in its January 1986 issue. These included WordPerfect, Volkswriter Deluxe, WordStar 2000 Plus and Microsoft Word. Software Digest concluded: "the Leading Edge Word Processor offers the best balance of user-friendliness, performance and features of all the programs tested." Basic & Simple Version $39. With Spelling Checker and Merge/Print Options, $49. 100% Satisfaction Guaranteed! For more information on this and other super bargains, see ad index for full page **BCE** display ads in red. **BCE 1-800-545-7447.**

(120B) MS/DOS PERIPHERALS

20 CPS Daisywheel Letter Quality Printer With Automatic Cut Sheet Feeder



$299

Axiom DX 2000 13" letter quality printer with 75 sheet automatic sheetfeeder. Also available, Axiom DX 2500 15" 25 CPS printer with sheetfeeder, $349. For more information on these and other super bargains, see ad index for full page **BCE** display ads bordered in red. **BCE 1-800-545-7447.**

Attention IBM WordStar Users:

Up to 60% Off

For IBM PC and Compatibles

CorrectStar (Updated SpellStar)—Corrects spelling from 65,000 word dictionary; offers alternative spellings. Just type a word the way it sounds and CorrectStar will find the correct spelling. List Price $145, ONLY $49; MailMerge—Merges files and for personalized form letters; assembles mailing lists and labels. List Price $99, ONLY $49; StarIndex—Creates alphabetized indices and table of contents. List Price $99, ONLY $49; ALL 3—CorrectStar, MailMerge, StarIndex, ONLY $99. For more details on these and other super bargains, see ad index for full page **BCE** display ads bordered in red. **BCE 1-800-545-7447.**

Lotus 1-2-3 Look—Alike $49

The Twin

Reads and writes 1-2-3 files, better graphics than Lotus. 100% satisfaction money back guarantee. See our full page ad for complete details. **BCE 1-800-545-7447.**

Memorex DSDD 59¢

Free Flip 'N' File with each order.

5¼" disks, complete with sleeves, labels and hubrings. These disks are covered by Memorex's lifetime replacement guarantee. 100 for 79¢ each ($79 plus $8 shipping), 500 for 69¢ each ($345 plus $20 shipping), or 1000 for 59¢ each ($590 plus $40 shipping). For more details on these and other super bargains, see ad index for full page **BCE** display ads bordered in red. **BCE 1-800-545-7447.**

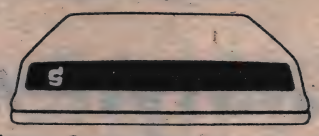
Nutshell DataBase Manager

$49

Complete database system for home or office. 100% satisfaction money back guarantee. See our full page display ad for compelte details. **BCE 1-800-545-7447.**

bargains, see ad index for full page **BCE** display ads bordered in red. **BCE 1-800-545-7447.**

Modem Liquidation!



Hayes Compatible 1200 Baud Modem With Communications Software $149

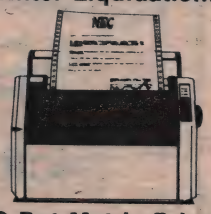
General DataComm Acculine 1200. Runs Smartcom, PC-Talk, Crosstalk and many more. Autodial/Autoanswer, 1200 bps or 0 to 300 bps, external, RS232-C Interface. IBM Compatible Communications Software included Free! For more information on these and other super bargains, see ad index for full page **BCE** display ads bordered in red. **BCE 1-800-545-7447.**

Printer Liquidation

Canon Color Ink Jet Printer $199

Canon PJ-1080A Ink jet Printer—37 cps, 640 dots per line, 7 striking colors, centronics parallel interface. Can be used for overhead projections. Works with all standard IBM graphics packages. For more information on this and other super bargains, see ad index for full page **BCE** display ads in red. **BCE 1-800-545-7447.**

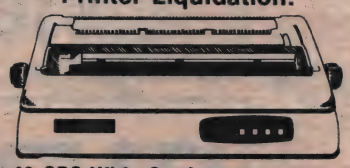
Printer Liquidation!



NEC Dot Matrix Printer $99

NEC PC-8027A--Transportable, complete graphics capabilities for IBM, Apple, etc. 105 CPS, compatible with Apple Graphics Printer and NEC 8023. For more information on this and other super bargains, see ad index for full page **BCE** display ads in red. **BCE 1-800-545-7447.**

Printer Liquidation!



40 CPS Wide Carriage Daisywheel Letter Quality Printer $349

Manufactured by TEC, Commodore 6400. Diablo 630 compatible, 40 CPS, Centronics Parallel interface, 2k buffer, bi-directional, optional sheetfeeder and tractor feed. For more information on this and other super bargains, see ad index for full page **BCE** display ads in red. **BCE 1-800-545-7447.**

(121) KAYPRO COMPUTERS FOR SALE

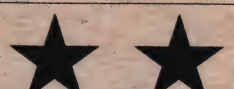
BUY/SELL USED COMPUTERS

Quick/Easy/Best value ● Thousands of items ● For sale by owners ● National Listing Service ● No Commission ● Only $29.95 to list until sold!

1-800-TECTRAN

800-832-8726
VISA/MC Accepted ● 401-467-8888
6-79

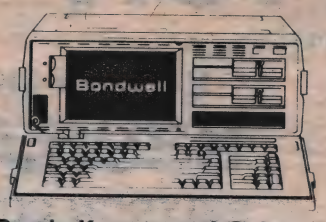
Kaypro 10 new computer used as store demo $1095; Kaypro 162e new computer used as store demo $1295. **919-864-5606** ask for **Bob.**



Kaypro-16 highly IBM compatible configured with 512k, 2 serial ports, parallel port, RGB and composite outputs, clock-calender, 1-360k floppy and 10 MG HD. All Micropro software with complete documentation. **MUCH** extra software included. Padded carrying case with strap. Mint. **$1600 TAKES ALL. J. Winberg,** 4500 GMD, G301, Longboat Key, FL 33548. **813-383-2670.**

Kaypro 4-84 with 2 390k floppies, clock-calander, internal modem, fan. All bundled perfect software plus Wordstar, Mailmerge, Newword, Kamas, T-maker Integrated, Q-pro 4, Turbo Pascal, Fourth, C, Pilot, D-Base II, complete piuperfect series, Rembrant graphics, microcornucopia disks, numerous others. Virtually every major program for CP/M with documentation. Extensive CP/M library. Mint. **$850 TAKES ALL. J. Winberg,** 4500 GMD, G301, Longboat Key, FL 33548. **813-383-2670.**

Portable CP/M Computer with Wordstar $299



Reads Kaypro and Osborne Software

The Bondwell Model 12A CP/M computer—64K RAM, Dual 360K DSDD Disk Drives, $299. Also Available: Model 14—128K RAM, Dual DSDD 360K Disk Drives, $399. Complete WordStar, MailMerge, ReportStar, CalcStar, DataStar package included free! For more information on this and other super bargains, see ad index for full page **BCE** display ads in red. **BCE 1-800-545-7447.**

(121A) KAYPRO COMPUTERS WANTED

Comp-Used

All used products over $100. Buy/sell through nationwide listing service. **NO CHARGE** for buying direct from owner. **NO RISK** for sellers - 6% commission when successful. Open 24 hours if you have a touchtone phone. **203-762-8677.** 6-79

(121B) KAYPRO SOFTWARE, PERIPHERALS

43c/PROGRAM for the best 70 **KAYPRO** public domain programs - including 16 games (adventure, blackjack), 40 utilities, 13 application programs and Modem7 (Kaypro version). Send $30 for 6 disk set to **PUBLIC DOMAIN USERS GROUP,** Box 1442-K1, Orangepark, FL 32067. 5-78

(123) SANYO COMPUTERS FOR SALE

(123A) SANYO COMPUTERS WANTED

Sanyo 55X in good condition **wanted.** Send information and price to: P.O. Box 52673, Tulsa, OK 74152. 5-78

(123B) SANYO SOFTWARE, PERIPHERAL

Domain/Commercial Software! Rent DS/DD Diskfulls of SANYO 550/5 software for $1, Buy $3 (including disk). **804-851-6864. Colony,** Box 808, Langley AFB, VA 23665.6-78

OPUS 6 & 7

New Update to the OPUS terminal programs. OPUS 6 & 7 are 'State of the art' SMART terminal programs for the Sanyo 550/555. The OPUS series feature: Auto Logon, Auto Key, Hi speed XMODEM, DC2/4, manual ASCII capture, full parameter control, DOS disk utilities, full control STOP WATCH, clear screen toggle, printer toggle, SPLIT SCREEN conference mode, ON SCREEN MENUS at all times, WINDOWS for option selection, interrupt driven — fully buffered (so no data is lost coming or going), etc. OPUS 6 is for the standard Sanyo. OPUS 7 is for the Sanyo with Video Board. OPUS 6 and 7, with manual. $37.95 PP.

OPUS 8

Now available for the IBM PC/XT. Clones, and true Compatibles. OPUS 8 is a smart terminal program containing all the great features of the OPUS series (see above.) OPUS 8 for IBM, with manual. $37.95 PP.

OMEGA

OMEGA is a window program with a graphics CLOCK, 30 year CALENDAR, and spelling LEXICON. OMEGA can be called up from WordStar, EasyWriter, or any program, anytime. The OMEGA disk contains OMEGA (standard Sanyo), OMEGA1 (Video Board Sanyo), and the source codes. The OMEGA disk, $20 PP. **Bob Jack Software, 8371 White Rd., Burbank, OH 44214, 216/948-2059.** 5-78

Public Domain Software for Sanyo MBC 55X computers, all tested on Sanyos. Games, financial, utilities, more. $1 (refundable) for detailed catalog. **Software Library,** POB 204, Prosser, WA 99350.

SANYO 550/555 PUBLIC DOMAIN RENTALS

110 VOLUMES-RENT AND COPY for $1 each or we copy for you. $3 SSDD; $6 DSDD. Sampler $5. Mastercard, VISA! Recorded info/order **619-941-3244 (Anytime): Futuresystems,** Box 3040(C), Vista, CA. 92083.

"Sanyo MBC 550/555 Beginner/Intermediate Guide." 360+ pages 2nd disk with 56 programs. $29.95 postpaid USA/Canada. VISA/MC okay. **818-346-7024, Fred Blechman,** 7217 Bernadine, Canoga Park, CA 91307. 6-79

Sanyo Software, BPI General Accounting System ver 1.1.1 for MBC 1000 NEW! $70; IUS Easywriter Word Processing New! $12. **GBCS,** Box 83, Laurel, MD 20707. **301-498-0121.**

Sanyo Source List - commercial programs, sources, prices; all available for Sanyo MBC 55X - our unique list compiled with much investigation; get everything you want for your Sanyo! Just $3. **Conceptware,** POB 204, Prosser, WA 99350.

Survey-Boundary 55X/675 (specify) MS DOS 2.11 basic $29.95. Description $1. **P. Billings,** 12134 Bonnie Terr. Dept. CSA, Seminole, FL 33542. 6-82

(125) SINCLAIR COMPUTERS FOR SALE

SINCLAIR QL-$299

Includes free software. First 50 orders will receive extra gift. Also stock QL-monitors, QL-printers, books and software. Ohio's only authorized Sinclair dealer. We service what we sell. Call us! **Brice Road Pharmacy,** 1653 Brice Road, Reynoldsburg, Ohio 43068. **614-861-3600.** 7-81

(125A) SINCLAIR COMPUTERS WANTED

(125B) SINCLAIR SOFTWARE, PERIPHERAL

2068 BANNERS with your 2040 printer. Includes alphabet, numbers, punctuation. Easy to run. Sample $2. SASE. Cassette $14.95 PP. **David Trevor,** Box 46208-T, Phoenix, AZ 85063. 11-78

CLOSEOUT! TS1000/ZX81 software from 99¢. SIMULUSION-CS2, Box 2382, LaJolla, CA 92038. 4-78

Computer Hardware expansion projects you build yourself, our step by step manuals show you how. Catalog $2 refundable on first order. **KLUGE SYSTEMS,** PO Box 297, Little Creek, DE 19961. 7-79.

Computer Hardware expansion projects you build yourself, our step by step manuals show you how. Catalog $2 refundable on first order. **KLUGE SYSTEMS,** PO Box 297, Little Creek, DE 19961. 7-79

FREE CATALOG, Timex Sinclair 1000, 1500, 2068, Spectrum and QL. **Basically Programming,** Dept. C, 2528 W. Olive Avenue, Fullerton, CA 92633. **714-738-0666.** 6-83.

FREE PROGRAMS!!
Timex-1000/Timex-1500/Timex-2068/ZX 81/TI99-4A/all IBMpc's, Apples, TRS80's, Commodores. Send stamps! **EZRAEZRA,** Box 5222PJU, San Diego, CA 92105.

New Boox 200 Computer Programs in basic for the T/S-1000, Z/X-81, T/S-2068 $7.95 + $1.50 p&h. **Bit/s Software,** 3202 W. Fillmore, Phoenix, AZ 85009. 6-79

QL CATALOG

Software-Hardware-Books-Mags-Accessories. We are an **Authorized Sinclair Dealer-QL-Flat Screen TV-QL S/W. Disk interfaces, RAM expansion,** printers, Centronics interfaces. **Software: I.C.E., GraphiQL, ZKUL, Supercharge Compiler, Concept 3D,** assemblers, graphics, and business packages, games and utility software, Sinclair Research software, **And Much, Much More.** Write for **Free Catalog** to: **Curry Computer,** PO Box 5607, Glendale, AZ 85312-5607. 1-602-978-2902. **Open** 7:00am to 5:00pm MST M-Sat- **Open Till 9:00 PM MST Tue + Thurs.** 7-81

QL PACKAGE UNDER $300.00
QL Computer with -128k, expandable to 640k, 4 business pkgs. included: Word Processing, Database, Spreadsheet, Business Graphics. 2 Serial ports, 2 Joystick ports, LAN for up to 64 machines. PLUS Utility program $17 value; PLUS FREE Subscription QL Report $15 value; PLUS 8 FREE programs; memory checker, music prg,

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- **T.E.J. Computer Products** — 859 N. Virgil Ave. Los Angeles, CA 90029 — 213-669-1418
- **Sharp's Inc.** — Route 10, Box 459 Mechanicsville, VA 23111 — 804-746-1664
- **Curry Computer** — 5344 Banff Lane Glendale, AZ 85306 — 602-978-2902
- **Foundation Systems** — 17620 26 Mile Rd. Washington, MI 48904 — 313-781-5800
- **Sunset Electronic** — 2254 Tarval St. San Francisco, CA 94116 — 415-665-8330
- **SCADware** — Route 16, Box 37 Church Creek, MD 21622 — 301-228-7910
- **Pyramid Electronics** — 2174 Gulf Gate Drive Sarasota, FL 33581 — 813-922-9574
- **Harry S. Walters** — 1101 Bassick Rd. Trumbull, Ct. 06611
- **Knighted Computers** — 707 Highland St. Fulton, NY 13069 — 315-593-8219
- **Brice Road Pharmacy** — 1653 Brice Road Reynoldsburg, OH 43068 — 614-861-3600

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BELTRON 8088

IBM™ Compatible

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640K, 20 MB, 2 Drives, Mono Card, Multi I/O, TTL Monitor, Keyboard $1350.00

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RUNS 40% FASTER

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MD2-D FLOPPY DISK
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*Purchase of 6 or more while supplies last.

QUANTITY DISCOUNTS FOR VARs, SCHOOLS, DEALERS, and CORPORATE PURCHASERS AVAILABLE

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MOST MAJOR CREDIT CARDS ACCEPTED

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BUILD YOUR OWN XT or AT COMPUTER

Case (Slide or Flip-Top)...$49.00

135 WATT Power Supply ...$79.00
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PC+PLUS Monochrome Graphic Card/Printer Port .....$ 99.00
PC+PLUS Mono/Color Card $129.00
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Color Pack Color/Graphics/ Printer.....$ 89.00
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TEAC 55BV .....$ 95.00

HARD DRIVE CONTROLLERS

OMTI Controller $135.00
DTC Controller.....$145.00

PRINTERS

CANON Laser Jet, 8 Pages/Minute
Diablo 630 Compatible $1995.00
ADS 160 CPS Dot Matrix.....$229.00

MONITORS

TVM Multi Display, RGB, Amber or Green Monitor $399.00
High Resolution RGB Monitor....$299.00
Zenith Monochrome TTL Monitor.....$ 99.00

SMARTEAM External 300/1200 Modem
100% Hayes Compatible.....$179.00
Modem (Hayes 1200B Compatible w/Software).....$159.00

COMPUTER SUPPLIES

PC+PLUS Diskettes
Box of 10 .....$9.95

64K RAM.....$15.00/set
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6 Plug Power Strip
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•UL Approved
•U.S. Made.....$17.95

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• 80 Column.....$15.95
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*per station

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73 Main St. · Norwalk, CT 06851 · (203)847-8982
1651 Crofton Blvd. #3 · Crofton, MD 21114 · (301)261-3141(Wash) · (301)793-0210(Balt)
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Computer Corner · Rt. 63 & 309 · N. Wales, PA 19454 · (215)643-5030

graphics picture prgs, calculator and more. plus -FREE Ground Shipping in continental U.S. -Call for Price -ALL FOR UNDER $300. **Curry Computer,** PO Box 5607, Glendale, AZ 85312-5607. **602-978-2902. 6-80**

Spectrum Software Closeout! Many top-quality programs from Beyond and Quicksilva. Prices from $3 plus S&H. Also Softaid compilation (10 games) $8.25 including S&H. Contact: **Carl Ziegler,** 14307 Ben Brush, San Antonio, TX 78248. Telephone: **512-492-8054.**

Survey-Boundary T/S-1000 $19.95. Description $1. **P. Billings,** Dept. CSC, 12134 Bonnie Terr., Seminole, FL 33542. 6-82

THE QL REPORT

A MONTHLY NEWSLETTER published in the U.S. for QL owners and those interested in the QL. Software reviews, books and hardware reviews, interviews with programmers and QL companies — and more. $15 for 12 issues. Published by: **Curry Computer,** PO Box 5607, Glendale, AZ 85312-5607, **1-602-978-2902. 3-79**

Technical Newletters: TS-1 (ZX80/81, TS1000/1500) or TS-2 (2068, Spectrum, QL): Each 50+ pages, bi-monthly, encyclopeadic format 5, includes: troubleshooting maintenance, articles, projects that work, tables, problem solving, basic and MC language training courses: $20 each or both $30 per year. **SAF UG** 2749 Eden Road, Leslie, MI 49251. **517-589-5542. 7-79**

(126) MISCELLANEOUS MICROCOMPUTERS

3B/Journal dedicated to users of AT&T. 3B line of computers. Six issues per year $15. Complimentary first issue. Write: **Simco Computer Applications,** POB 4431, Missoula, MT 59806. 7-79

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Comp-Used

All used products over $100. Buy/sell through nationwide listing service. **NO CHARGE** for buying direct from owner. **NO RISK** for sellers - 6% commission when successful. Open 24 hours if you have a touchtone phone. **203-762-8677. 6-79**

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If you bought before calling us you probably paid too much! We stock **CCS, COMPUPRO, CROMEMCO, DUAL, ICM, KONAN, MULLEN, PICKLES & TROUT, INDUSTRIAL COMPUTER DESIGNS, TARBELL, VECTOR** .....

A FEW OF THIS MONTH'S SPECIALS:
ACTRIX PORTABLE w/ Built-In Dual Flpys, MX80 Printer, Modem, 7" Amber Screen, CPM/80 & Every Software Pkg You Ever Thought of Owning **ONLY ONE! $498**
ADV. DIGITAL SUPER 186/256K ... **$995**
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COMPUPRO I/F 4 3 S & 2 P-Ports . **$335**
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COMPUPRO DISK 3 ST-506 ..... **$509**
COMPUPRO SYSTEM SUPPORT 1 . **$299**
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CROMEMCO D+7A 8 Ch 8 Bit D/A **$316**
DUAL AIM-12 Bit/32 Ch A/D In **$629**
DUAL AOM-12 Bit/4 Ch D/A Out .. **$540**
ILLUM. TECH. CAD BOARD 8 Color 1024X1024 Res..... **$1049**

INTELLIGENT COMPUTER DESIGNS
8MHz DUAL Z-80 SLAVE w/ 4 S-Ports - 128K - S/W. Install to TurboDOS ... **$595**
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MACROTECH VRAM 512K Static w/ Batt. Back-up & Memory Drive **$769**
MACROTECH MI-286 80286/Z80H 2 Cycle 80286 ..... **$675**
MACROTECH MSR-II 1 MB DRAM . **$825**
MACROTECH MSR-II 2 MB DRAM **$1059**
VECTOR RAM 17 64K Static Ram/Rom with Deselect **$195**

S-100™
14455 N. 79th Street
Scottsdale, AZ 85260

Please Look For Our Display Ad

Dynabyte Monarch 8086 CPU boards, each board has (8) socketed HM6116P-2 SRAM, and (1) socketed 8086-2 CPU only $10 per board!! **GBCS,** Box 83, Laurel, MD 20707. **301-498-0121.**

Epson PX-8 Geneva. Includes 64K multiunit, portable printer, cables, and software (Wordstar). Perfect condition, complete with original boxes and manuals. $900 or trade for QX-16. Call evenings **405-529-2715. 5-78**

Forthcard: Rockwell 65F11 microcontroller. STD bus card with 8k NVRAM, serial port, 16 I/O lines, EPROM programmer, card cage $200. **Jerry Mueller,** 1163 Naples St., San Francisco, CA 94112. 6-78

$$$$ PDP/8-M Collectors Item. CPU only $199 no warranty. Looks really good on your bookshelf though!! **Godfather's Used Computer Syndicate,** PO Box 3037, 1154 W. SR 436, Forest City, FL 32714. **305-774-1111. 6-82.**

MAGIC COMPUTER Z80 4MHz +6502 I/O processor CPM 2.2 software, transportable 12 inch green screen monitor 64KB, two DSDD Teac keyboard w/keypad video, console, parallel, RS232 ports. **212/719-5555** 9am-5pm, 749-0295 6pm-11pm. 4-80

Micrographicmicroloop 1100-Pulmonary Function Screener--Computer for medical Diagnosis-inquire for more info. **Len, 212-777-4353.**

Micropolis/Vector Graphic Users Group Monthly newsletter, hardware, software. **205-881-1697,** 604 Springwood Cir., Huntsville, AL 35803-1740. 5-81

Morrow MD3 2 drives, monitor, printer + software. CPM system-will read Osborne, Kaypro, IBM formats $600. **813-531-8015** evenings, **Mike. 7-79**

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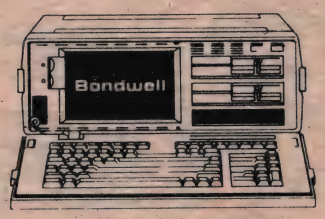
OSM Zeus 4 User System with 25MB HD, 20MB tape, 5¼" floppy, 2 Wyse 50 terminals, Toshiba 1351 Printer, MUSE Operating System, Spellbinder Word Processor. Excellent condition $10,160. Call **Dick 713-496-9074. 7-83**

Otrona Attache 8/16 - 640K Memory Upgrades $260; Attache 8/16's $1000 - Parts & Repair Service available. Call or Write: **D & L Enterprises, 303-452-1409,** 11506 Adams St., Thornton, CO 80233. 6-81

Portable CP/M Computer with Wordstar $299



Reads Kaypro and Osborne Software

The Bondwell Model 12A CP/M computer—64K RAM, Dual 360K DSDD Disk Drives, $299. Also Available: Model 14—128K RAM, Dual DSDD 360K Disk Drives, $399. Complete WordStar, MailMerge, ReportStar, CalcStar, DataStar package included free! For more information on this and other super bargains, see ad index for full page **BCE** display ads in red. **BCE 1-800-545-7447.**

Radio Shack 16B with Zenix o/s 512K memory 15MB hard disk, 1 floppy, monitor, printer, 1 additional CRT. Used 3 months for development $3250. Used CRT's $75 each. Call: **Telecomp, Inc., Janice Lecordo,** 135 Cherry St., Milford, CT 06460. **203-877-5432. 7-79**

Rockwell Aim Computer complete with ED/ASM, Basic, power supply, all documentation. Asking $150. Call evenings **201-569-0819, John Bockelmann,** 174 Jefferson Ave., Tenafly, NJ 07670. 6-78

Royal Business machines. Computer CPIM, DSDD drive, Peachtree's, PeachText, PeachCalc software. Serial, parallel, composite and RGB ports $249; Royal Daisy Wheel printer $149; royal RGB monitor $225; All new. Factory Warranty. Shipping 5%. **203-673-2399, RNC,** 124 Winding Lane, Avon, CT 06001.

Slicer system for Sale. 8MHz Slicer CPU board, CPM86, BIOS/Monitor; 256k Memory Expansion with RTC, Serial Port, XEBEC 1410 HD Controller, 20 MB disk drive, Slicer Enclosure with 135W supply, Dual Floppies in sep. cabinet. Boards work and are checked out. I ran out of GAS before integrating Hard Disk and Controller. System is worth $1850 if I add & test HD and controller components. $1200 to you as is. **Bill Beckett,** 77 Clinton St., Framingham, MA 01701 or call **617-879-8066** evenings.

TeleVideo: two TVS-803, $995 each; One TS803H (10MB), $1495; Complete. Original boxes, disks, manuals. Presently being used. Includes TeleWrite, TeleCalc, TeleChart. **405-843-8739. Robert Alfson,** 2225 NW 46, Oklahoma City, OK 73112. 7-80

Televideo Comptuers TS801 w/8in. drive $500; TS 806/20 $1200; TS 816H/40 $2200; Apple II + loaded $700; cogitate enhanced file by file backup utility for TS816/H40 $50; RS422 board for TS803 $50. **Richard Seale, 303-449-4897/443-4681. 6-78**

Televideo TS 1603, complete system, includes OS, WP, and Spreadsheet. Runs MS-DOS and CP/M 86 (8088 CPU) 2 half height 96tpi drives $450. **GBCS,** Box 83, Laurel, MD 20707. **301-498-0121.**

Vector Graphic 4/30 5Mb hard disk 630Kb floppy CP/M 8 & 16 bit CPUs. NEC 7700Q printer for Vector Graphic, 50 pin parallel interface. Complete with manuals and supplies. **M. Richman,** 5113 Memorial Hwy., Tampa, FL 33614. **813-885-1789. 6-78**

Wanted: Royal Alphatronic computer. **317-767-2904,** 1313 Midwestern, Wichita Falls, TX 76302.

Z:10G Model-II, unit, 20 Meg drive, cartriage tape, 8 serial ports, 1 parallel, 512K memory, 2 terminals, expandable. $5000. **904-478-1591. 6-80**

(127) XEROX COMPUTERS FOR SALE

820II-hard disc drive. Shugart SA1004 10 meg. $150; Hard disc daughter board $40; hard disc system power supply $35; hard disc cable set $10; EPROM Burner $75; Low Profile keyboard w/o case $25. **Bob Brodsky, 703-256-6607.**

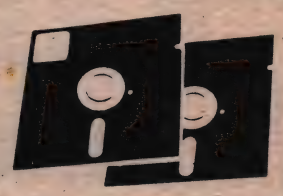
Xerox 820-2 Disc Drives, manuals, software, $800. **Call 717-392-6107, Harry Jackson,** 125 S. Duke St., Lancaster, PA 17602. 6-78

(127A) XEROX COMPUTERS WANTED

(127B) XEROX SOFTWARE, PERIPHERAL

— BIG BOARD BUILDERS —
KEYBOARDS $25. See "APPLE BUILDER KEYBOARD" ad in category 108 for a super, full ASCII, 83 key keyboard which also works great with the Big Board/820 series computers. Thanks, **Electrovalue Industrial. 12-82**

Memorex DSDD 59¢



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5¼" disks, complete with sleeves, labels and hubrings. These disks are covered by Memorex's lifetime replacement guarantee. 100 for 79¢ each ($79 plus $8 shipping), 500 for 69¢ each ($345 plus $20 shipping), or 1000 for 59¢ each ($590 plus $40 shipping). For more details on these and other super bargains, see ad index for full page **BCE** display ads bordered in red. **BCE 1-800-545-7447.**

Xerox 820 CPM, WordStar, Communications dual 8" drives Amber screen, MS-DOS, Commercial printer. **317-447-2500.**

(128) MISC. MICRO, SOFTWARE, PERIPH.

1000's of FREE SOFTWARE programs for over 80 computer formats including **IBM, CP/M & COMMODORE** from the **PUBLIC DOMAIN USERS GROUP.** Over 8500 members worldwide. For information send large SASE to **Public Domain Users Group,** Box 1442-C3, orangepark, FL 32067. 5-78

5 megabyte hard disk drives, 2 for $100; These are 8" SA1002 Shugart Winchesters. Controller kit $200. Will interface to most computers: 6809, Z80, STD, S-100, Flex, CP/M, Apple, Heath. Call **Digital Search, 803-877-9444.**

8 in. Morrow drive w/power supply $125; 47 8 in. disks $10; 70 8 in. disks of most useful public domain software $50; 100 Wang 2200 series 8 in. disks $30; 6 ITT six buttons phones $10 each; phone headset $30; RS422 board for Televideo TS803 $50; IEEE488 board for Okidata 92/93 printer $50. **Richard Seale, 303-449-4897/443-4681. 6-78**

CNC PROGRAMMERS!

Digitizer Program enables digitizing on your plotter, IBM-PC or MS-DOS computer. Automatically writes CNC program. FREE BROCHURE. Other CNC, NC programs, programming, consultation available. Write stating needs. **Mid-Ohio Systems** (CS2), Box 207, Brice, Ohio 43109.

Compaq portable user's manual and diagnostics disk wanted. **R.T. Duggan, 305-584-1836. 7-79**

Domain/Commercial Software! Rent DS/DD Diskfull of Clone/MS-DOS Software for $1, buy $3 (including disk). Call f/Trades/Clubs. **804-851-6864. Colony,** Box 808, Langley AFB, VA 23665. 6-78

IBM PC AND CLONES
SANYO 55X & COMMODORE PUBLIC DOMAIN RENTALS

THOUSANDS OF PROGRAMS YOU CAN RENT and Copy for $1 per disk or use our low cost copy service. Moneyback guarantee. Sampler $5. Mastercard, VISA! Recorded info/order **619-941-3244 (anytime) or -10 SASE for details (Specify Computer): Futuresystems,** Box 3040(C), Vista, CA. 92083.

(129) S-100 COMPUTERS

COMPUPRO DISK 1 $150. Disk 1A $295. Disk 3 $250. Interface 3/8 $275. M Drive H $275. Interfacer 4 $185. All excellent. Phone **415-651-5931. 5-78**

CompuPro 816 System. CPU 8085/88, 256K Ram 17, System Support I, Disk I, Interfacer 4, 2 8" disks, 512K M-Drive, Wyse terminal, WordStar, Spellstar, Pascal & Basic included plus over 50 MB of diskettes thrown in $3500 OBO. **714-644-6215. 6-78**

Compupro Components: 80/88 cpu board with CP/M 2.2x upgrade, disk 1. I/O-4 $649; 21 slot cromemco box with power supply and fan $249; Computer memories Inc. CM-5000 5¼" 10 meg formatted hard disk $395; Microsystems corp 9391 H.D. controller and software $129; two Mitsubishi M-2894-63, 1.2 meg. DSDD std. 8" floppies in box with power supplies $675; Four Lexicomp 64k staic RAM boards with 90 ms. C-MOS chps, 712 meghz - $150 each. **Art 217-688-2950** 6-10 PM CST. Thanks.

FREE SUBSCRIPTION

to THE STATEMENT with purchase of any item from this ad.
** USR S-100 modem-300/1200 .....$179
** SG 64K RAM-flexible! $89
** Cromemco ZPU Z80 4Mhz.....$79
** Relay card-8ch. w/iso $89
** SD VDB8024 video $129
** SSM 2708/16 EPROM burner $79
Items EXC used, untested, documented. 10 day return privileges w/20% restocking fee. Add UPS, tax (WA). Mailorder only — NO TELEPHONE LISTING. **S-100 Board Bank,** Dept. C3, Box 344, Olympia, WA 98507.5-78

For Sale: New Fulcrum Qmnidisk controller with CP/M $215; Vector Graphic 48k RAM and Z80 boards, as is, $20 each. **Gary Van Cott,** PO Box 1879, Grafton, VA 23692. **804-898-3680.**

IMSAI 8080, Z80 CPU w/ROM monitor, 64k static RAM, serial card, parallel card, tarbell DD card, XEBEC disk interface card. Two 8" Innovex floppy drives w/PS, Lynx 10MB cartridge drive w/PS. CP/M 2.2, utilities, manuals, $495 + UPS. **Ron, 816-758-6657 or 758-6236. 7-79**

IMS, S-100, Z80A, 64k, 2-8' double density drives, clock/cal w/bat, wood grain cabinet, 2 serial, 2 parallel ports, Soroc IQ130 Terminal, 200 disks, much software, W/P, languages, games, more. $600 plus shipping. **Ralph Partlow,** 100 Flintwood Ct.-7A, Winston-Salem, NC 27106. Phone - Days **919-773-6910** Nite **919-767-1264.**

Micropolis/Vector Graphic Users Group Monthly newsletter, hardware, software. **205-881-1697,** 604 Springwood Cir., Huntsville, AL 35803-1740. 5-81

S-100 MACHINE

SD Systems Z80, 64K, I/O, DD 8" dual floppy drives, extra slots, configured and ready to run with CP/M, only $695 + UPS. Free subscription to THE STATEMENT and USR 300/1200 S-100 Modem only $75 with system order--while supply lasts. Guaranteed 10 DRP w/20% restocking. COD w/15% deposit. Mailorder only, no phone listing. Order from **S-100 BOARD BANK,** Box 344, Olympia, WA 98507. 7-80

S-100 Modem $179

S-100 Modem Sale!!! U.S. Robotics 300/1200 modem—plugs into s-100 bus. Auto-answer, auto-dial, full duplex, originate, answer modes. LIMITED QUANTITY at SALE PRICE —$179!!! Used, untested, documents, software disk. 10 day return privileges w/20% restocking fee. Add UPS, tax (WA). Mail order only-NO TELEPHONE LISTING. **S-100 Board Bank,** Dept. C3, Box 344, Olympia, WA 98507. 5-78

S-100 USERS!!!

S-100 Board Bank buys, trades, sells, consigns ancient, modern S-100 cards, etc. BUYERS: savings on S-100 cards from only $29; send $4.37 ($10 US overseas) to subscribe to our offical voice and ad extraordinaire, THE STATEMENT. SELLERS: send full description, BEST price. Mailorder only - no phone listing. Write **S-100 BOARD BANK,** Box 344, Dept. CH, Olympia, WA 98507. 7-83

TWO IMS Multi-user computers. First: 40 meg. hard disk. Twelve slot chassis, takes seven slaves, four installed. $2900 plus $700 per user. Second: Two 24 meg. hard disk. 22 slot chassis, 12 slaves installed. $3800 plus $700 per user. Both 8 bit 64K, Z80A CPU. TurboDOS 3.1, ReaWorld MBSI accounting package and other software available. **Kamex Construction,** 119 E. Adams, LaGrange, KY 40031. 502-222-1500. 5-78

Vector Graphic 4/30 5Mb hard disk 630Kb floppy CP/M 8 & 16 bit CPUs. NEC 7700Q printer for Vector Graphic, 50 pin parallel interface. Complete with manuals and supplies. **M. Richman,** 5113 Memorial Hwy., Tampa, FL 33614. **813-885-1789. 6-78**

WANTED FOR RESALE!!!

*** **CP/M Software** and/or Documentation (original) *** Advanced Digital Cards *** Operating Systems (Turbo-dos, MP/MII, etc.) *** Advanced Digital Cards *** CCS Cards *** Pal Programmer *** ROM Programmer *** Cat-100 Schematics/MOD info *** Graphics cards *** 256K RAM ICs *** Winchesters *** 1Kx1K Hi-Res Monitors *** Electralogics RAMDisks *** Floppy Drives *** All items MUST be attractively (!) priced, or trade. State Best Prices— please, no "Make Offers". Mail order only—NO PHONE LISTING. **S-100 Board Bank,** Dept. C3, Olympia, WA 98507. 5-78

Z80 4MHZ/64K North Star Horizon; Dual 380K floppies, four I/O ports, twelve slots; perfect condition, $695. Call **513-426-5879. 5-78**

(130) S-100 COMPATIBLE, PERIPHERAL

5 Megabyte hard disk drive subsystem for all S-100 systems. Kit $450. **Digital Search, 803-877-9444.**

IMSAI 8080 S100 Chassis $195; Electronic systems serial I/O $25; 8k-static RAM $25; 32k-Static RAM $65; 8080 CPU $40; Z80 $60; CDC 8" SSSD $45; DG-Nova2 w/Doc $175. **Jim Carroll 615-355-1061. 7-83**

(131) S-50 COMPATIBLE, PERIPHERAL

5 Megabyte Hard Disk add-on for SS-30 or SS-50 from $450 with software and interface. **Digital Search, 803-877-9444.**

(132) HEATH COMPUTERS FOR SALE

H89 64K, 2 drive H77 $695; Z89-37 Soft controller like new $200; Z47 8" drives system $550; CPM, H-DOS, Business software. **Jim Trimble,** 6401 Old Trail Road, Ft. Wayne, IN 46809. **219-747-2879. 6-78**

H/Z 89A 48k for sale: $500 or best offer. Call **217-732-9641. 6-79**

(132A) HEATH SOFTWARE, PERIPHERAL

5 megabyte add-on hard Disk subsystem for Heath-89. Kit $475. **Digital Search, 803-877-9444.**

Have you ever wanted to run a program on your H-89 and couldn't find it? Get all of your programs and disks names in alphabetical order. Send large SASE to **McNeal,** PO Box 904, Warsaw, IN 46580.7-83

(133) BURROUGHS SYSTEMS

B20 Series computers, peripherals for sale from $400. **813-875-3084 Lisa.** 7-79

Wanted: Spreadsheet or similar software on 15" disks for Burroughs B730 system. **717-393-6430.**

(134) HEWLETT PACKARD COMPUTERS FOR SALE

9121D 3.5" dual drive, 2225A ThinkJet, 2382A Terminal with case, VisiCalc. Mint condition, slighly used by school district post; checked, cleaned $750. **M.I.S.,** 431 Ashbury Street, San Francisco, CA 94117.

H.P. 7925S disk drive $3000 on maintenance. call **Scotty at 214-458-8881.** 6-80

HP86B Demo models, with 9121 S/D 82913A, 12" CRT and 7470A-002 plotter, most like new. **Stephen Computer Services, 313-478-1868, 34700 Grand River Ave., Farmington, MI 48024.** 7-83

Hewlett Packard HP-87A Computer. Almost new condition, only $400. **Televideo** Personal Terminal, only $200. Call **Bob Thomason, 502-683-9871.** 6-82

(134A) HEWLETT PACKARD COMPUTERS WANTED

$$$$ I Buy, Sell, & Trade Hewlett Packard computers. **Godfather's Used Computer Syndicate,** PO Box 3037, 1154 W. SR 436, Forest City, FL 32714. **305-774-1111.** 6-82.

Wanted: HP-7475A Plotter. Call **Ed 412-854-1133.**

(134B) HEWLETT PACKARD SOFTWARE, PERIPH.

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256k Memory boards for HP series 200/300 computers. $175 each. Hurry! Low inventory. Call **Loren at 813-493-5009.** 7-79.

Financial Calculator, for the HP 150, new, never opened, $19. 603-783-4708.

HP-150 Touchscreen Software: Rbase 4000 (New) $95, used $65; DSN Link (new) $40, (used) $35; Memo Maker $39; Reference/Users manuals (new) $25; card File (new) $39, (used) $30; mailmerge (used? $35; HP-150 Touchscreen Complete system including HP printer and still unopened manuals and software (used only as demo) $1950. **GBCS,** Box 83, Laurel, MD 20707. **301-498-0121.**

HP2225C ThinkJet. Centronics interface, fast (150 cps), bi-directional, QUIET, dot-matrix printer. Used one month. $250. **615-525-6358.** 7-79

H-P 2621A Terminal - RS-232, 110-9600 Baud, 24 x 80 col., 2 pages scrolling memory $150. **Len, 212-777-4353.**

Hewlett-Packard 150 Touchscreen PC, 512K ram, parallel port. Includes WP, DB, MSDOS, Turbo Pascal, disks. Excellent Condition, used little. Asking $3000. **518-891-5331 evenings.** 6-78

STOCK MARKET programs for HP 86/87 computers. Powerful programs for selecting and evaluating stocks and commodities. Send $39.95 to **Lock Software,** Box 3163, Baltimore, MD 21228. Specify disk size. 9-79

(136) DATA GENERAL SYSTEMS

(138) DATA GENERAL, SOFTWARE PERIPH.

(148) DEC SYSTEMS FOR SALE

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Comp-Used

All used products over $100. Buy/sell through nationwide listing service. **NO CHARGE** for buying direct from owner. **NO RISK** for sellers - 6% commission when successful. Open 24 hours if you have a touchtone phone. **203-762-8677.** 6-79

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DEC Liquidation CloseOut Prices!

Rainbow 100 $300;; Pro 350 $500; LA100 $300; LA50 $100; DF03AA Modem $75; Floorstands $50. **202-944-5200.**

DEC PRO350 System w/256k, dual floppy drives, 10M HD, FPA, monitor & keyboard. Recent upgrade by DEC included new motherboard and HD controller card. P/OS v2.0, CP/M adapter (Z-chip) w/software, Maps/Pro Financial Planning Software and RDM Relational Database software included $3750; Will also include several RAINBOW software packages that will run under Z-Chip. **S. Mills,** 4615 Orleans Blvd., Jefferson, LA 70121, **504-733-9611.** Add-post.

DEC PRO 350 slightly used. Best offer over $3000. 512 RAM, dual floppys, 10M hard disk, floating point, LA100 printer, amber monitor. **Bac-Data Medical Information Sys., Inc.,** 100 Campus Road, Totowa, NJ 07512. Tel. 201-890-1155. 5-78

DEC Pro350 system w/512k, 2 drives, 10M HD, Floating point adapter, mono monitor, cables. List $7245, Ask $3495. LA50 printer List $695, Ask $395. **714-627-7411 Ken.6-79**

DEC RAINBOW 100B 512k Lotus, Word Processing, MS-DOS, CP/M, Pascal, Zork. Will accept any reasonable offer. **Frank Rosato, 315-478-6681, 315-652-6219.** 7-79

DECmate WP system, terminal, pedastal, extended work surface, two 8" disk drives. Diablo 1345A printer, tractor feed, cabinet software, manuals, disks, ribbons, $3500. **312-593-8880.**

LSI-11 KD11-F processor with EIS/FIS, 64Kb memory card, DLV11-F serial card, DRV11 parallel card, RXV11, REV11 with RX01 floppy disk drive, H780 (slave) power supply, VT52, LA36, make offer, **Doug 703-354-2556.** 6-78

PDP 11/23 system 256KB 20 of 20.8MB disks excellent condition under Digital maintenance original user 1982 price $4,500 or best offer. Call **312-341-0101.** 7-84

Rainbow 100A w/128k $1100; Rainbow 100B w/128k $1300; with/896k $1600; w/dBASE III and Wordperfect v4.0 $1900; w/10MB hard disk (w/o controller card) $2250. Infostar $125. **Richard Gebhart, 402-553-1646.**

We buy and sell Apple IIe's, DEC Rainbow's, IBM PC's, XT's, AT's, etc. **Micro Resales,** 130 West Main, Urbana, IL 61801. **217-367-3621.** 7-80

(149) DEC SYSTEMS WANTED

(150) DEC SOFTWARE, PERIPHERAL

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DEC Liquidation CloseOut Prices!

Rainbow 100 $300;; Pro 350 $500; LA100 $300; LA50 $100; DF03AA Modem $75; Floorstands $50. **202-944-5200.**

DEC Rainbow Software - MSDOS V2.1 2 @ $50; Benchmark Word Processor 2 @ $100; mailmerge $50; Crosstalk $75; C Language $150; TK Solver $100; make offer on all. **Bob Kosiba,** 625 Adams Street, Denver, CO 80206. Phone **303-355-8321.**

Rainbow Memory 912 KB Intermedia board, works with 100A, 100B, or 100+. Excellent condition $150; Call **Brian, 208-376-8232** leave message.

Rainbow formatted, unopened, 90% off. FinalWord ($300) $30; Wordplus-PC with dictionary ($500) $50. **M.I.S.,** 431 Ashbury Street, San Francisco, CA 94117.

(154) IBM SYSTEMS FOR SALE

512K IBM PC with 2 DSDD floppies, IBM monochrome monitor, Keytronics 5150 keyboard, AST board with RS232, parallel port, clock/calendar. Excellent Condition $2100 & shipping. Call **Jim at 802-879-8657.** 6-78

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Comp-Used

All used products over $100. Buy/sell through nationwide listing service. **NO CHARGE** for buying direct from owner. **NO RISK** for sellers - 6% commission when successful. Open 24 hours if you have a touchtone phone. **203-762-8677.** 6-79

IBM Main Frame system 3 model 12, dual hard disk, line printers, two data entry consoles, and more. Excellent condition. Make offer. Call **504-394-7358.** 6-78

IBM Systems/23 consists of 5322 (Model 124) computer, 5242 printer, manuals, excellent condition, $4000 or best offer. **William Camp,** 22 Patch Rd., RD3, Binghamton, NY 13901. **607-648-9396.**

IBM Compatible, includes 256K RAM, 4.77-8MHz, Bios, 2 DSDD floppies, Serial, Parallel, Clock, Color Graphics Card and Monitor.

$799.00

THE BROKERAGE 619-941-8401 7-79

(155) IBM SYSTEMS WANTED

$$$$ I BUY, Sell & Trade IBM PC's. We may have a large quantity 'AT' clones coming shortly. **Godfather's Used Computer Syndicate,** PO Box 3037, 1154 W. SR 436, Forest City, FL 32714. **305-774-1111.** 6-82.

Paying $5.00 per pound for scrap tantalum capacitors. Any amount, fast payment! Ship: **Sciuto,** 103 Saratoga St., Lawrence, Mass. 01842. 9-79

(156) IBM SOFTWARE PERIPHERAL

Documentation MSDOS 2.11 or WS' 3.3 $10 each; 3" binders $3 each; Time Life Intro to IBM or WS Magic $5 each; **Short Card** uses 896K with present software includes 256K and RAM-disk program $139. All orders + $3 UPS ($5 COD). **P & A Company,** 29 Tee-Ar Pl., Princeton, NJ 08540. 4-78

FREE SOFTWARE

NO JOKE not a come-on. National brand DS/DD lifetime guarantee disks, $12.75 per box of ten. Say the word and we will fill the disks with our best public domain and freeware programs. Add $1.75 per order for postage and handling. **A.M. Baker,** 7907 Prairie Creek Way, Sacramento, CA 95823. 5-78

★ ★ ★

GREAT SOFTWARE - INEXPENSIVE FIVE + CASINO GAMES IBM-PC or Compatibles, No Graphics needed. Send $19.95, PP California Res. add 7% tax. **TRIABYT COMPUTER SOFTWARE,** 1890 Crater Lake Ave, Milpitas, CA 95035. 3-79

IBM Software Lotus 1-2-3 $150; The Print Shop $25; CopyII-PC $25; Sideways $30; All complete with manual/registration. **M. Bickerton, 47 Birchwood Ct., Tinton Falls, NJ 07724. 201-842-3762.**

Koala Speed Key System New!! for IBM PC, use with Symphony, Lotus, etc., Retails for $199, Liquidation $59. **GBCS,** Box 83, Laurel, MD 20707. **301-498-0121.**

Latice C Compiler, version 2.01A, for **IBM or IBM** clone $99. **603-783-4708.**

Medical Practice Management software for IBM/Compatibles: Billing, patient management, claims processing, more, Retail $4995, Liquidation $295, Manual only - $15. Complete installation and consulting available. **GBCS,** Box 83, Laurel, MD 20707. **301-498-0121.**

RENT AND COPY
IBM PUBLIC DOMAIN
$1 PER DISKFULL!

RENT THE BEST OF THE PUBLIC DOMAIN or use our low cost copy service! Fast service-credit cards accepted-Moneyback guarantee! Send #10 SASE for details (specify comptuer): **Futuresystems,** Box 3040 (C), Vista, CA 92083. - 24HR Recorded info/order: **619-941-3244.**

Top View by IBM, Windowing for the PC list $100++, Closeout price $45 includes S/H; IBM **PC-Jr BASIC** book & Cartridge $61 includes S/H. **Computer Reset,** PO Box 461782, Garland, TX 75046. **214-276-8072.** 6-78

(166) MISC. (HARDWARE & SOFTWARE)

★ ★ ★

Compaq Monitor. Like new amber Deskpro monitor, $125 PP. CCR. **Steve Ringwood,** 6085 Skyline Blvd., Oakland, CA 94611-1039. 415-271-3209 days. 5-78

(172) DISK DRIVES

8" Shugart MOD SA 860-1 double sided drives in unused condition with full 1 year warranty. These drives replace old MOD 800, 801, 850, 851, Require no AC and are direct drive. Capacity is 1.6 MB, Track to track access time is 3MS. **CEC,** PO Box 1965, Burlingame, CA 94010. **415-342-4058.** 5-90

10 Mg half height Miniscribe hard disk drive for sale. Solid as a rock. Absolutly no bad sectors. Model 30212. IBM PC compatable. First $200 + shipping gets it. Phone: **John Monahan** day3 **415-769-5284,** night **415-253-1777.**

8" Shugart MOD SA 860-1 double sided drives in unused condition with full 1 year warranty. These drives replace old MOD 800, 801, 850, 851, Require no AC and are direct drive. Capacity is 1.6 MB, Track to track access time is 3MS. **CEC,** PO Box 1965, Burlingame, CA 94010. **415-342-4058.** 5-90

3½" DSDD Hewlett Packard HP9114A with 10 disketts. For use with HP portable computers, HP41 series calculaters or IBM PC computers. EC asking $449. Call **716-238-8160** days or **716-624-4297** after 6:00 P.M. ask for **Joe.** 7-79

45 Meg Corvus Omini Drive $1995

Computer Learning Systems, RFD 8, Box 375, Concord, NH 03301.

8" SSDD ½ Height Shugart Mod SA 810-1 unused condition with full one year warranty. Price $269. These drives have track to track access times of 3MS. They will replace Shugart Mod 800, 801, or any other 8" SSDD drives, however, they require no AC to operate. **CEC,** 1745 Adrian Rd., Unit 1, Burlingame, CA 94010. **800-228-3411.6-79!**

8" SSSD Drives $75; Can be used as Double Density. Removed from operational equipment. Shugart 8" 50 Hz, 220V conversion kits also available. **Digital Search, 803-877-9444.**

8" Shugart MOD SA 860-1 double sided drives in unused condition with full 1 year warranty. These drives replace old MOD 800, 801, 850, 851, Require no AC and are direct drive. Capacity is 1.6 MB, Track to track access time is 3MS. **CEC,** PO Box 1965, Burlingame, CA 94010. **415-342-4058.**

Bernoulli Box, 20 megabyte, dual. Like new $2000/offer. **Chris Soden** M-F, 8-5, **408-946-1400.**

Cabinet for two 8 inch wide style Shugart drives. Fan, all AC and DC wiring with power supply $100. **Cascade Electronics Inc.,** Route 1, Box 8, Randolph, MN 55065. **507-645-7997.**

★ ★ ★

Comp-Used

All used products over $100. Buy/sell through nationwide listing service. **NO CHARGE** for buying direct from owner. **NO RISK** for sellers - 6% commission when successful. Open 24 hours if you have a touchtone phone. **203-762-8677.** 6-79

Corvus hard disk periphery: VHS mirror BK-up. Retail $900. Ten Apple Constellation One network boards. Retail $400 each. Taking best offers! Call **415-456-1577.** 7-82

Disk Drives: Apple III external $55; Shugart SA-455-2 (HH) for IBM Northstar, $60; Qumetrack 142 (HH) for IBM $65; IBM 360K for AI $85; **Skip Lightsey, 303-665-7858.**

Eagle File 10 or **File40** wanted. Scott, 1039 Southfield, Shreveport, LA 71106. **318-425-4433.**

External and internal storage hardware remain. Please see last month's ad or call. **S. Mills,** 4615 Orleans Blvd., Jefferson, LA 70121, **504-733-9611.**

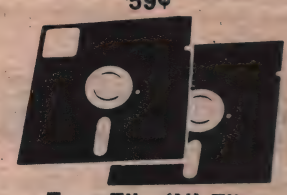
★ ★ ★

Help Need Manuals(s) for DTC 5150BX-2 controller card. Xerox or original. **Robert Childress,** 127 West 5th Street, Cookeville, TN 38501.

Innovex 200 8" SSSD Drives, excellent quality. Can be used double density. 4 for $100. Complete, but require alignment or adjustment. **Digital Search, 803-877-9444.**

Innovex 210 8" (SSSD or SSDD) just cleaned/aligned, w/Manual $40; Tandom TM-100-2 DSDD in 2-drive cabinet w/PS $85. Pries + UPS. **Ron 816-758-6657.** 7-79

Memorex DSDD 59¢



Free Flip 'N' File with each order.

5¼" disks, complete with sleeves, labels and hubrings. These disks are covered by Memorex's lifetime replacement guarantee. 100 for 79¢ each ($79 plus $8 shipping), 500 for 69¢ each ($345 plus $20 shipping), or 1000 for 59¢ each ($590 plus $40 shipping). For more details on these and other super bargains, see ad index for full page **BCE** display ads bordered in red. **BCE 1-800-545-7447.**

Micro-floppy 3½" drives. 500k bytes Shugart SA300 $90 each. NEC FD1035, DSDD (1 meg) w/warranty - $175 each. Same interface as 5¼" drives. **Digital Search, 803-877-9444.**

Morrow 8 in. disk drive, complete w/case and power supply $125. **Richard Seale, 303-449-4897/443-4681.** 6-78

SA850 Disk drive removed from service. 90 day guarantee $99. **Cascade Electronics Inc.,** Route 1, Box 8, Randolph, MN 55065.

SASI Winchester controller $75 each; 2/$140. SMS Model FWD 5001. Simple host adaptor required. Runs Shugart and Quantum drives. Write: **William R. Wood,** 4863 S. Livonia Rd., Livonia, NY 14487 or call **716-346-3304** evenings. 6-78

★ ★ ★

SPECIAL SALE

Shugart SA800-2 $59; Shugart SA850 $99; TEC FB-501 5¼" ½ht. SS/DD $49; MPI 52S 5¼" DS/DD full ht. $55; Sixty day warranty-shipping extra. Documentation included. **LDL Electronics,** 13392 158 St., N. Jupiter, FL 33478. **305-747-7384.** See showcase ad for drive servicing. 6-80

ST506 Winchester Controller Kit $200. Faster than Western Digital WD1002 Controllers. SA1002 8" hard disk controller also available. **Digital Search, 803-877-9444.**

Schugart Dual 600K 8" disk drives with power supply and Apple II disk controller card. Independent unit. Call **201-545-4400** $200. 7-80

Shugart Model SA 860 8" DSDD half-height mint condition, these drives do not require AC. Track to track access time is 3MS, capacity is 1.6 Meg-Byte. Includes full one year warranty $279. **C.E.C., 800-228-3411.** 1206 S. Amphlett Bl. #3, San Mateo, CA 94402.

Shugart Model SA 810 SSDD 8" half-height in mint condition. These drives do not require AC. Track to track access time 3MS. Capacity is 800 K-Byte, includes full one year warranty, $269. **C.E.C., 800-228-3411,** 1206 S. Amphlett Bl. #3, San Mateo, CA 94402.

Winchester Drive Sale. Shugart SA1002: 8" - 5 megabytes, 2 for $100, controller kit $200. **Digital Search, 803-877-9444.**

8" Shugart MOD SA 860-1 double sided drives in unused condition with full 1 year warranty. These drives replace old MOD 800, 801, 850, 851, Require no AC and are direct drive. Capacity is 1.6 MB, Track to track access time is 3MS. **CEC,** PO Box 1965, Burlingame, CA 94010. **415-342-4058.**

Shugart Model Sa 860 8" DSDD half-height mint condition, these drives do not require AC. Track to track access time is 3MS, capacity is 1.6 Meg-Byte. Includes full one year warranty $279. **C.E.C., 800-228-3411.** 1206 S. Amphlett Bl. #3, San Mateo, CA 94402.

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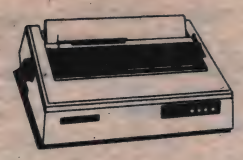
8" SSDD ½ Height Shugart Mod SA 810-1 unused condition with full one year warranty. Price $269. These drives have track to track access times of 3MS. They will replace Shugart Mod 800, 801, or any other 8" SSDD drives, however, they require no AC to operate. **CEC,** 1745 Adrian Rd., Unit 1, Burlingame, CA 94010. **800-228-3411.6-79!**

Shugart Model Sa 860 8" DSDD half-height mint condition, these drives do not require AC. Track to track access time is 3MS, capacity is 1.6 Meg-Byte. Includes full one year warranty $279. **C.E.C., 800-228-3411.** 1206 S. Amphlett Bl. #3, San Mateo, CA 94402.

(174) PRINTERS

20 CPS Daisywheel Letter Quality Printer With Automatic Cut Sheet Feeder



$299

Axiom DX 2000 13" letter quality printer with 75 sheet automatic sheetfeeder. Also available, Axiom DX 2500 15" 25 CPS printer with sheetfeeder, $349. For more information on these and other super bargains, see ad index for full page **BCE** display ads bordered in red. **BCE 1-800-545-7447.**

C. Itoh (TM), NEC (TM) owners - get Correspondence Quality print with our ROM installed. ROMs to fit 8510- (A&B), and 1550-(A&B) printers, as well as the NCR (TM) 6411, and Apple (TM) DMP. Single pass printing of our CQ font replaces proportional font on these printers. Send SASE for original print sample. $30 + $5 S&H for 8510A ROM, $40 + $5 S&H for 8510B ROM. To order VISA/MC, call **MicroAge Computers, 607-936-3053.** To use Check, Money Order, or Purchase Order, address correspondence to: **House of Hardware,** RD #1, Box 227, Burdett, NY 14818. 7-80

Custom WordStar instructions for Epson, Star/Gemini, Panasonic, Citizen, BMC, Legend, Olympia, Okidata, Prowriter printers; get boldface, continuous underlining, super/subscripts, compressed, enlarged characters and more. $10, specify computer and WordStar version. **LAI,** PO Box 13118, Minneapolis, MN 55414. 6-79

Daisywheel 45 CPS Diablo 1610 with PC interface $585. Also tractor, printwheels, ribbons, manuals. Works perfect. **507-289-0400.** 6-78

Diablo 630...Letter Quality Printers.. Like new, perfect condition, from $850; 630 API (serial & parallel) $1095; 630 KSR (with keyboard) $1295; Diablo 1650 KSR, metal wheel, 45 Cps $895; Diablo 1610 RO, 49 Cps, Super Value @ $475; model 620, 21 Cps, $395; Full Warranty. Superior equipment at excellent prices! **Expansion Products Service Company,** (Certified DIABLO Service Center), contact us for full details & pricing: PO Box 4217, Mountain View, CA 94040. **415-965-7222.**

Diablo Accessories: Forms tractors for 630 & Hytype II printers; Uni-Directional $95; Bi-Directional $195 (new), $175 (used); Sheet Feeder, mechanical $425 (new), $325 (used). Dual Bin Sheet feeder, automatic, processor controlled, for Diablo 630 $895. **Expansion Products Service Company,** PO Box 4217, Mountain View, CA 94040. **415-965-7222.**

Diablo Hy-type-I printer mechanisms complete $75 manual included. Diablo forms tractor Hy-type-I, Hy-type-II $50 each. All Plus UPS. **919-833-9672.** 7-81

Diablo or Qume printer power supply kit. $75. New QUME pin feed platens $40. **Digital Search, 803-877-9444.**

Epson FX-80 Printer, with Tractor Feed attachment included. Perfect condition. Excellent printer $225. **Randall Owens, 214-826-0347.**

Corona LP300 Laser Printer. Same printer in recent Ads. Prints up to 33 fonts without expensive font cartridges. Includes interface card and cable for I.B.M. PC and compatibles. Used for less than 1000 sheets of printing. Like-new condition. Perfect printing of text & Epson compatible graphics. Must sell quickly, $1500. **Randall Owens, 214-826-0347.**

Epson MX-100 printer with 16K microbuffer. Very good condition $350 & shipping. **Call Jim at 802-879-8657.** 6-78

Four Diablo 1620 printers $550 each. One with sheet feeder $650. Call **Scotty 214-458-8881.** 6-80

★ ★

Gemini 10x Printer in mint condition, with manual. Dot-matrix with tractor feed. PC print utility programs included. $175. **J. Winberg,** 4500 GMD, G301, Longboat Key, FL 33548. **813-383-2670.**

HP Ink Jet printer, excellent condition $149; 150 cps, parallel, works with most computers, installation assistance provided. **Computer Learning Systems.**

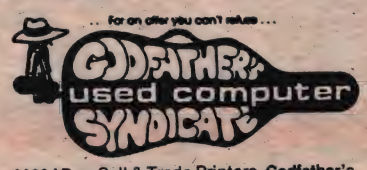
IBM Letter Quality printer/typewriter, ASCII code, parallel/serial $369. **Ron's Electronics,** N5009 Sunset Vista, Onalaska, WI 54650. **608-783-5341.**

I/O Computer Termial $75; We tell you how to convert to IBM printer/typewriter. **Ron's Electronics,** N5009 Sunset Vista, Onalaska, WI 54650. **608-783-5341.**

ImageWriter 1
$195
603-783-4708
Computer Learning Systems, RFD 8, Box 375, Concord, NH 03301.

Interface Kit for Diablo or Qume printers RS232 or parallel. $95. Parts for Qume 1 & 3 and Diablo Hytype I: repairs, cases, power supplies. **Digital Search, 803-877-9444.**

Keyboard $89.95 for **Brother15/Comriter/Dynax15**- convert your printer into a typewrite with correction capability, more features, better keys than most typewriters. $5 shipping. VISA/MC add 4%. **Kyntek Marketing,** PO Box 13070, Minneapolis, MN 55414. **612-379-1020.** 6-79



$$$$ I Buy, Sell & Trade Printers. **Godfather's Used Computer Syndicate,** PO Box 3037, 1154 W. SR 436, Forest City, FL 32714. **305-774-1111.** 6-82.

I Bought an NEC PC-PR103A Dot-Matrix Printer from a MAJOR close-out company. I LOVE IT. It Works GREAT With my IBM PC in character mode! Only thing is, it came with no cable wiring diagram or software to set the fonts and functions!

$14.95 + $2 shipping and handling gets you a menu driven printer set-up program!

This program will let you pick: ELITE; fast PICA; COMPRESSED; PROPORTIONAL; NLQ' Quiet mode; Fast mode; Wide mode; bold printing mode; Set Left and Right margin; Set to 6 or 8 lines per inch; and run a one line Printer Test! All from one easy, fast, BUG-FREE menu.

I said "Why bother to write this program, when you can buy a copy for $14.95?"

It also includes a simple wiring diagram helping you to hook up your printer to an IBM PC parallel port. Most disk formats and sizes supported. For PC-DOS, MS-DOS and most CP/M computers. Send your name address **and phone number,** computer name, model, disk format, and check or money order for $14.95 + $2 S/H to: **MOMS SOFTWARE, 32 Blanche Ave., New Windsor, NY 12550** OR call **914-565-2412** to ask about versions for **other Dot-Matrix printers.**

$$$$ Toshiba 1350 for $899 like new. **Godfather's Used Computer Syndicate,** PO Box 3037, 1154 W. SR 436, Forest City, FL 32714. **305-774-1111.** 6-82.

Mannesmann Tally Spirit 80 parallel printer w/4 ribbons $170 (new), IEEE488 board for Okidata 92/93 printer $50. **Richard Seale, 303-449-4897/443-4681.** 6-78

NEC 2050 letter quality printer w/Bi-directional tractor feed; single sheet feeder; parallel interface; 4 thimbles $795 OBO. Call **904-478-5288.** 7-79

NEC 3510 35 CPS daisywheel printer. Good condition. Only $300. call Evenings **405-529-2715.** 5-78

NEC PRC103A 110CPS, 46 NLQ, new $219; Royal letter master Daisy Wheel $149; Royal Beta 8200 typewriter with built-in Centronics computer interface $339. All new. 5% shipping. **203-673-2399. RNC,** 124 Winding Lane, Avon, CT 06001.

NEC Spinwriter: Model 3515, letter quality with forms tractor; 40 CPS, like new, with serial interface; Extra thimble and documentation included $365; Diablo-630, serial, 45 cps, with LQ sheet feeder extra wheels & full documentation $435. **Skip Lightsey, 303-665-7858** evenings.

Okidata M83A, 15-inch carriage, with OKWRITER plug-in module enhancement that provides: Near Letter Quality, Letter Quality, Proportional Spacing, Bold-Face, Underlinging, & APA Graphics. Tractor feed, dustcover & manuals included. Light use, mint condition. $375 PP. **Jack DeHaven,** 421 S. Raleigh St., Martinsburg, WV 25401. **304-263-8707.**

★ ★ ★

Primage 90 with single bin sheet feeder. 90 c.p.s. New in box. Retails for $1895 asking $1295. **312-699-8854. Orbit Computer Supplies,** 1401 Oakton, #C, Des Plaines, IL 60018.

Printer Liquidation

Canon Color Ink Jet Printer
$199

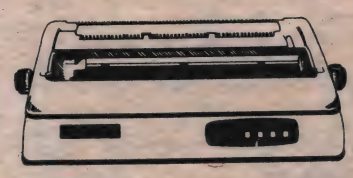
Canon PJ-1080A Ink jet Printer—37 cps, 640 dots per line, 7 striking colors, centronics parallel interface. Can be used for overhead projections. Works with all standard IBM graphics packages. For more information on this and other super bargains, see ad index for full page **BCE** display ads in red. **BCE 1-800-545-7447.**

Printer Liquidation!

NEC Dot Matrix Printer
$99

NEC PC-8027A--Transportable, complete graphics capabilities for IBM, Apple, etc. 105 CPS, compatible with Apple Graphics Printer and NEC 8023. For more information on this and other super bargains, see ad index for full page **BCE** display ads in red. **BCE 1-800-545-7447.**

Printer Liquidation!



40 CPS Wide Carriage Daisywheel Letter Quality Printer
$349

Manufactured by TEC, Commodore 6400. Diablo 630 compatible, 40 CPS, Centronics Parallel interface, 2k buffer, bi-directional, optional sheetfeeder and tractor feed. For more information on this and other super bargains, see ad index for full page **BCE** display ads in red. **BCE 1-800-545-7447.**

Selectric Interface - Easily interface input/output selectrics - serial/parallel, correspondence/BCD, Board/EPROM/MAN UAL $35. **M. Bickerton,** 47 Birchwood Court, Tinton Falls, NJ 07724. **201-842-3762.**

Selectric Typewriter 745 new, with interface for centronics parallel or serial to 9600-baud $345. **M. Bickerton,** 47 Birchwood Court, Tinton Falls, NJ 07724. **201-842-3762.**

Several Accessories still remain - see last month's ad or call. **S. Mills,** 4615 Orleans Blvd., Jefferson, LA 70121, **504-733-9611.**

Sheet Feeder, Diablo F-10 for 630. Like new in box! $225. Send SASE. **W. Domb,** 1152 N. Mountain Ave., Upland, CA 91786.

Star Printer model DP8480TP, mint condition, Centronics parallel interface connects directly to Radio Shack, IBM, others. Selectable character pitch, English & foreign character sets, graphics, etc. Cost $399, Sell for $200. **Jim 203-482-4326** after 7pm EST.

TTX1014 Cut sheet feeders, $69.95. Fits Swintec, Nakajima Olympia Electronic R.O. **415-829-4976.** 3-83

Tractor Feed for Microline 80 or Microline 82. New in box $35. **Cascade Electronics Inc.,** Route 1, Box 8, Randolph, MN 55065. **507-645-7997.**

Wanted: HP-7475A Plotter. Call **Ed 412-854-1133.**

Xerox 800 Diablo 33 CPS Metal Daisy Wheel Dual interfaces $600 postpaid. **Nick Jones,** 2 West Winter Street, Delaware, Ohio 43015. **614-369-6812** (days). 6-78

Diablo P-11 dot matrix printer, (list $649) unused $200 each. Full warranty. 100 CPS parallel interface, excellent quality. **Digital Search, 803-877-9444.**

Diablo Model 1345A daisy wheel printer, HyType II, with power supply and cable, make offer. **Doug 703-354-2556.** 6-78

★ ★

Silver Reed Exp-500 letter quality printer, mint, with Elite, Gothic and Mini (15 CPI) printwheels. Includes double sided heavy duty tractor feed. 12 extra ribbons. $325. **J. Winberg,** 4500 GMD, G301, Longboat Key, FL 33548. **813-383-2670.**

Toshiba P1350 letter quality printer Bi-directional tractor feed; exc. cond. All for $695 OBO. Call **904-478-5288.** 7-79

(178) TAPE DRIVES

APPLE 9-TRACK TAPE DRIVES — Read/ write standard ½-inch, 800 BPI, IBM compatible tapes on an Apple. Exchange data with minis and mainframes. Backup floppies and hard disks. $1000-$2100. **Electrovalue,** Box 376-C, Morris Plains, NJ 07950. 201-267-1117. 8-78

Triple I PHI-Deck cassette tape transport model 8000086 large quantity. Best offer. Skip 15811 Perkins Lane, Bowie, MD 20716. **301-249-5607 evenings.**

½" mag tape drives. new--Wanco -Perkin Elmer 7", 9 track 800 BPI $450 ea. **Digital Search, 803-877-9444.**

(180) CRTS, MONITORS

12" Hi-Res monochrome greem monitors. Distributers surplus original cost $149, Pay ONLY $69 plus shipping. **509-525-2580.6-79**

12" Langley Sinclair green screen CRT's, **new, tube only,** $25. **603-783-4708.**

14" Comrex RGB color monitor. IBM PC compatible. Excellent resolution up to 720 x 400. Also Technical manual. First $200 + shipping gets it. Phone **John Monahan day 415-769-5284, night 415-253-1777.**

★ ★ ★

Compaq Monitor. Like new amber Deskpro monitor, $125 PP. CCR. **Steve Ringwood,** 6085 Skyline Blvd., Oakland, CA 94611-1039. 415-271-3209 days. 4-77

Green Monitors BMC 12" green like new $85 each. Call **Kevin Smith at 716-487-1563.5-78**

$$$$ Super Hi-Res RGB Monitors—See our full page ad this issue for your choice of a super deal on a like new monitor!!! **Godfather's Used Computer Syndicate,** PO Box 3037, 1154 W. SR 436, Forest City, FL 32714. **305-774-1111.** 6-82.

USI Pi3 Hi-Resolution 12" Amber monitor, used, as-is, in factory cartons $29 plus shipping. Limited Quantities. **GBCS,** Box 83, Laurel, MD 20707. **301-498-0121.**

(181) CRT TERMINALS

Freedom 50 terminal, excellent condition $300 & shipping. Call **Jim at 802-879-8657.** 6-78

Televideo 910 CRT: Excellent Condition with manual $175. **Skip Lightsey, 303-665-7858** evenings.

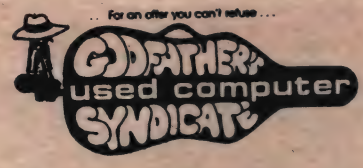
(182) TERMINALS

(2) SOROC IQ 120 terminals, with or without Northstar Horizon 64K systems. Phone **805-987-8621.**

Adds RS232C Dumb-Terminal. 110-9600 baud, 24x80 monitor, detachable keyboard, numeric keypad $135. **Anthony 502-439-1981.**

Adds Viewpoint Basic with original 90-day warranty. $375. **Digital Search, 803-877-9444.**

Beehive CRT's and parts for sale, rent or lease. Repair exchanges also Cado beehives and cromemco 3102's. Superbee II's, B100, B300/400, B500/550, Microbee, DMIS DM20/30, DM83, DM3270, DM standards, ATL083, ATL3270, ATL004, and more. Call **Mark (916) 677-0355** 10-78



$$$$ Super Televideo 950 Terminals like new $299!!! With 90 day warranty!! **Godfather's Used Computer Syndicate,** PO Box 3037, 1154 W. SR 436, Forest City, FL 32714. **305-774-1111.** 6-82.

LIKE NEW ASCII amber 15" RS232C ports swivel base, 24x80 w/man. original cartons $150 each. **Kim 205-855-4600.** 6-78

TI Silent 700 printing terminal with modem $300; DataComm commercial quality 1200b modem with phone & self-test $100 or best offer. **Dave 612-379-1170.**

Terminal Hazeltine 1500 $300. **213-375-7784** 6-79

Wanted: Computer Devices (1205) ASR terminal with integral minicassette (need four). **David Blair,** PO Box 353, Fort Mill, SC 29715. 6-79

Wyse Model 50 video terminal. New in the box $400. **216-486-0823.** 7-80

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(183) MULTIBUS BOARDS

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(184) MEMORY

PCjr 640K total with clock/cal, printer port, ram disk $299 New; US.S Robotics Courier 2400 Baud Modem $379 New. SASE for info. **Paul Rau Consulting,** 260 N. Lincoln Way, Dept. CS, Galt, CA 95632. 5-78

(186) MODEMS

212A/103 modem. 1200 baud, 300 baud. Auto dial, etc. Hayes compatible. Excellent value $125 w/1 year warranty. **Digital Search, 803-877-9444.**

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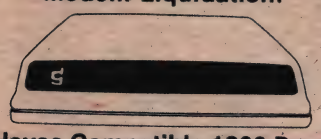

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NATIONWIDE BULLETIN BOARDS 1000+ listed alphabetically by state, area code, and computer type. Send $4.50 to **R. Miller,** 5539 Whistlewood Ln., Charlotte, NC 28208. 5-78

PCjr 640k total with clock/cal, printer port, RAM disk $299 new. U.S. Robotics Courier, 2400 baud modem $379 new. SASE for info. **Paul Rau Consulting,** 260 N. Lincoln Way, Dept. CS, Galt, CA 95632. 5-78

Prentice P202T modems $75 each; Racal Milgo Omni96, Omni48, Omnimox40, 4-channels, and 8-channels. Call **Scotty at 214-458-8881.** 6-80

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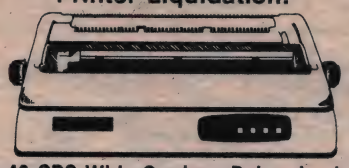

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(188) MISC. EQUIPMENT

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(189) BOOKS, MAGAZINES

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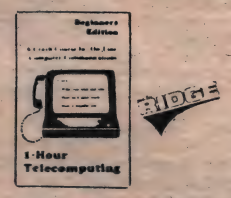

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(190) MISC. LARGE SYSTEMS

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Custom WordStar patches for your **Epson** or compatible printer, Aero, Citizen, Gemini, Nec, Panasonic, Prowriter Jr., Smith-Corona, Star Micronics, and others. Get Boldface, Double Strike, Underlining, Double Width, Scripting, Italics, Compressed, and more for only $9.95. Include printer model and wordstar version number. Send check or money order to: **SM Urban,** Rd. #1, Box 431K, Palmyra, PA 17078. 6-79

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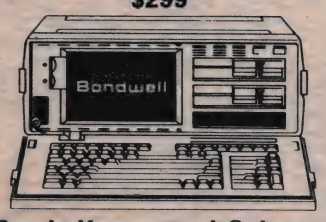

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(192) MISC. SOFTWARE

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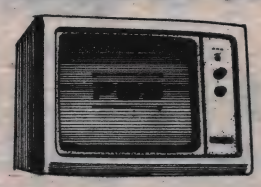

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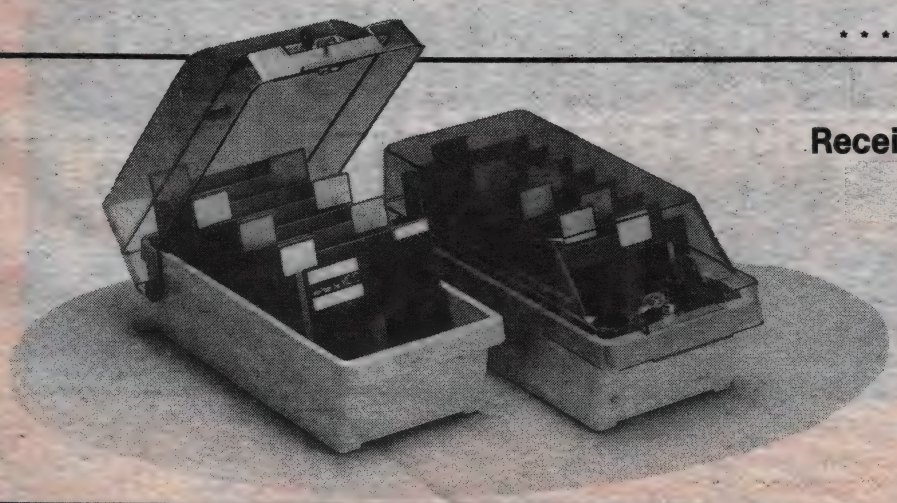

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NOTE: 82S100 = U17 (C-64)

MOTOROLA

MC68701-Microcomputer with EPROM

The MC68701 is an 8-bit single chip microcomputer unit (MPU) which significantly enhances the capabilities of the MC6800 family of parts. On-chip resources include 2048 bytes of EPROM, 128 bytes of RAM, Serial Communications Interface (SCI), parallel I/O, and a three function Programmable Timer.

MC68701 . . . . . $24.95

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Z80	1.75
Z80-CTC	1.79
Z80-DART	4.95
Z80-PIO	1.79
Z80A	1.85
Z80A-CTC	1.89
Z80A-DART	5.25
Z80A-PIO	1.95
Z80A-SIO/0	5.25
Z80B	3.95
Z80B-CTC	4.95
Z80B-PIO	4.95
6500/6800/68000 SER.	
6502	2.75
6520	2.95
6522	4.95
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6551	6.95
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6850	1.95
6852	4.75
68000L8	9.95
68661	8.95
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8031	6.95
80C31BH	19.95
8035	1.95
8073N	29.95
8080A	3.95
8085A	2.75
8086	8.95
8086-2	10.95
8087(5MHz)	129.95
8087-2(8MHz)	159.95
8088	7.95
8088-2	9.95
8116	8.95
8155	2.75
8155-2	3.95
8156	2.75
8202	9.95
8203	24.95
8212	1.95
8224	2.25
8228	3.49

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8243	2.49
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8250B (For IBM)	7.25
8251A	2.25
8253-5	2.25
8254	9.95
8254-2	11.95
8255A-5	2.25
8257-5	2.49
8259-5	2.49
8272	4.95
8279-5	2.95
8741	8.95
8748	7.95
8749	9.95
8751	29.95
8755	14.95
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ADC0808	8.95
ADC0809	3.95
ADC0816	14.95
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DAC0808	1.95
DAC1008	7.95
AY-3-1015D	4.95
AY-5-1013A	3.95

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Part No.	Function		Price
4116N-15	16,384 x 1	(150ns)	.89
4128	131,072 x 1	(200ns)	5.95
4164N-150	65,536 x 1	(150ns)	1.25
4164N-200	65,536 x 1	(200ns)	1.15
TMS4416-12	16,384 x 4	(120ns)	4.95
MM5280	4096 x 1	(200ns) 2107	1.95
8118	16,384 x 1	(120ns) (+5V Only Required)	.99
41256-150	262,144 x 1	(150ns)	2.95
50464-15	65,536 x 4	(150ns) (4464) (41464)	6.49

STATIC RAMS

TMM2016-12	2048 x 8	(120ns)	1.69
2102	1024 x 1	(350ns)	.89
2102-2L	1024 x 1	(250ns) L.P. (91L02)	1.49
2114N	1024 x 4	(450ns)	.99
2114N-L	1024 x 4	(450ns) L.P.	1.09
2114N-2	1024 x 4	(200ns)	1.05
2114N-2L	1024 x 4	(200ns) L.P.	1.49
21C14	1024 x 4	(200ns) (CMOS)	.49
2149	1024 x 4	(45ns)	4.95
5101	256 x 4	(450ns) CMOS	3.95
HM6116P-3	2048 x 8	(150ns) CMOS	1.45
HM6116LP-3	2048 x 8	(150ns) L.P. CMOS	1.49
HM6264P-12	8192 x 8	(120ns) CMOS	4.09
HM6264LP-12	8192 x 8	(120ns) L.P. CMOS	4.29
HM6264P-15	8192 x 8	(150ns) CMOS	3.75
HM6264LP-15	8192 x 8	(150ns) L.P. CMOS	3.89
6514	1024 x 4	(350ns) CMOS (UPD444C)	4.49

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1702A	256 x 8	(1μs)	5.95
TMS2516	2048 x 8	(450ns) 25V	4.95
TMS2532	4096 x 8	(450ns) 25V	5.95
TMS2564	8192 x 8	(450ns) 25V	9.95
2708	1024 x 8	(450ns)	3.95
TMS2716	2048 x 8	(450ns) 3 voltage	9.95
2716	2048 x 8	(450ns)	4.95
2716-1	2048 x 8	(350ns) 25V	5.95
27C16	2048 x 8	CMOS	9.95
2732	4096 x 8	(450ns)	4.75
2732A-20	4096 x 8	(200ns) 21V	4.95
2732A-25	4096 x 8	(250ns) 21V	4.49
2732A-45	4096 x 8	(450ns) 21V	4.25
27C32	4096 x 8	CMOS	7.95
2758	1024 x 8	(450ns) Single +5V	5.95
2764-20	8192 x 8	(200ns) 21V	4.49
2764-25	8192 x 8	(250ns) 21V	4.25
2764A-25	8192 x 8	(250ns) 12.5V	4.49
2764-45	8192 x 8	(450ns) 21V	3.95
27C64	8192 x 8	CMOS 21V	5.95
27128-25	16,384 x 8	(250ns) 128K 21V	4.49
27128A-25	16,384 x 8	(250ns) 12.5V	5.95
27256-25	32,768 x 8	(250ns) 256K (12.5V)	7.95
27C256-25	32,768 x 8	(250ns) 256K (CMOS) (12.5V)	10.95
68764	8192 x 8	(450ns) 25V	15.95
68766	8192 x 8	(350ns) 25V	16.95
74S387	256 x 4	PROM O.C.	1.69
74S471	256 x 8	PROM T.S.	4.95
82S123	32 x 8	PROM T.S.	2.95
82S129	256 x 4	PROM T.S.	2.95

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Part No.	1-9	10-99	100-up
8 pin LP	.13	.12	.11
14 pin LP	.15	.13	.11
16 pin LP	.17	.15	.13
24 pin LP	.31	.30	.29
28 pin LP	.39	.37	.35
40 pin LP	.49	.46	.43

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Part No.	1-9	10-99	100-up
8 pin WW	.55	.49	.45
14 pin WW	.69	.65	.59
16 pin WW	.75	.69	.65
24 pin WW	1.19	1.09	.99
28 pin WW	1.39	1.29	1.19
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DT1050	Digitalker™	$24.95
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DT1057 - Expands the **DT1050** vocabulary from 137 words to over 250 words. Includes two (2) ROMs and specs.

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7106CPL	8.95	7211MIPL (Micro)	8.49
7106EV/Kit	46.95	7217IJI	10.95
7107CPL	8.95	7217AIPI	8.95
7107EV/Kit	46.95	7224IPL	10.95
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74HC02	.39	74HC221	1.95
74HC04	.39	74HC240	1.39
74HC08	.39	74HC244	1.49
74HC10	.39	74HC245	1.59
74HC14	.59	74HC253	.79
74HC30	.39	74HC259	1.19
74HC32	.45	74HC273	1.79
74HC74	.45	74HC373	1.49
74HC75	.69	74HC374	1.49
74HC76	.69	74HC393	1.19
74HC85	1.19	74HC595	1.95
74HC86	.59	74HC688	1.95
74HC123	1.19	74HC4040	1.19
74HC125	.99	74HC4049	.79
74HC132	.79	74HC4050	.79
74HC138	.79	74HC4060	1.19
74HC139	.79	74HC4511	1.95
74HC154	1.95	74HC4514	2.95
74HC163	.89	74HC4538	1.95
74HC174	.89	74HC4543	2.95

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74C02	.29	74C175	.89
74C04	.25	74C221	1.19
74C08	.35	74C240	1.59
74C10	.29	74C244	1.59
74C14	.49	74C373	1.95
74C32	.35	74C374	1.95
74C74	.49	74C912	7.95
74C85	1.19	74C915	1.19
74C86	.29	74C920	9.95
74C89	3.95	74C921	9.95
74C90	.89	74C922	3.95
74C154	2.95	74C923	3.95
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TL074CN	.79	TL497ACN	2.19
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LM307CN	.45	NE555V	.29
LM309K	1.25	XR-L555	.69
LM311CN	.45	LM556N	.59
LM317T	.99	NE558N	1.19
LM318CN	1.19	LM565N	.99
LM319N	1.19	LM567V	.89
LM320K-5	1.35	NE592N	.89
LM320T-5	.59	LM741CN	.29
LM323K	4.49	LM747N	.59
LM324N	.39	LM1458CN	.49
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LM339N	.49	LM1489N	.69
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LM340K-12	1.35	LM1871N	1.95
LM340K-15	1.35	LM1872N	2.49
LM340T-5	.49	LM1896N	1.59
LM340T-12	.49	ULN2003A	.99
LM340T-15	.49	XR2206	3.95
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LM348N	.69	XR2211	2.95
LF351N	.49	LM2907N	1.95
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LF356N	.89	LM3905CN	1.19
LM358N	.49	LM3909N	.89
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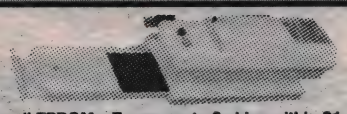
M200R. . . . . $89.95 ea. or 2 for $169.95
Tandy Model 200 Expansion

UV-EPROM ERASER



Erases all EPROMs. Erases up to 8 chips within 21 minutes (1 chip in 15 minutes). Maintains constant exposure distance of 1". Special conductive foam liner eliminates static build-up. Built-in safety lock to prevent UV exposure. Compact - 9.00"L x 3.70"W x 2.60"H. Complete with holding tray for 8 chips.

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210830	Intel Memory Handbook (83/84).	$19.95
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Howard Industries (4.68" sq., 60 cfm)

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NEW PRODUCTS!

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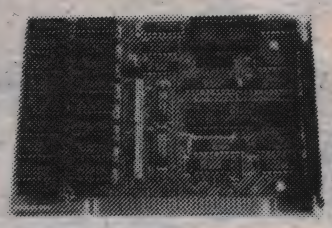
Expansion Memory Half Card and Clock/Calendar for the Tandy 1000



The **Zuckerboard Expansion Memory Board** allows you to expand the memory of your Tandy 1000 (128K Model) as much as 640K! 256K DRAM chips increase your computer's memory by either 256K or 512K, bringing your total system memory up to either 384K or 640K. The memory board also includes a DMA controller chip. Optional clock/calendar plugs directly onto the memory board. Manual included.

TAN-Clock	Clock/Calendar Option (only).	**$ 39.95**
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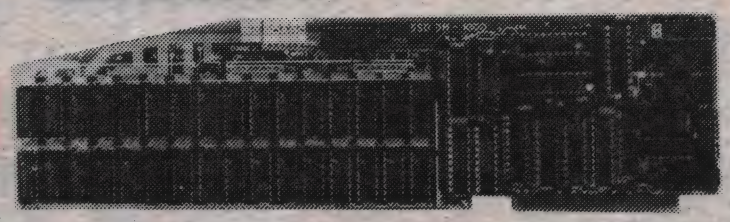
BIG BOARD

1MBYTE RAM CARD for Apple II, II+ and *IIe**



Introducing a third generation memory card that gives you both great expandability and great versatility at an extraordinary price. **Versatility to users** means that BIG BOARD is compatible with software written for the Synetix SSD (Flashcard) as well as for Jameco's JE868 128K RAM Card. Big Board makes available 426K of worksheet space, using the program THE Spreadsheet Version 2.0. It is compatible with PLUSWORKS XM for running Appleworks on the Apple II. Versatility also means that BIG BOARD comes complete with RAMDISK software for DOS 3.3, ProDOS, Pascal 1.2, and CP/M for Microsoft's Softcard. A separate driver is available for the AppliCard (StarCard).

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NEW

ADAPTA. $74.95

IBM® COMPATIBLE ACCESSORIES

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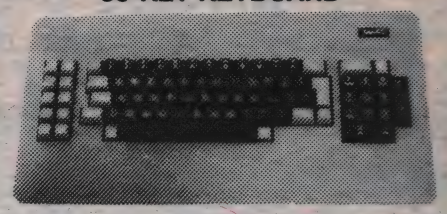

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IBM-E384K	Multifunction Card.	**$169.95**
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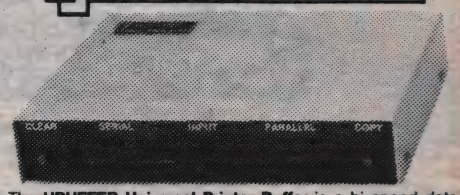
NEW! **Universal 64K/256K Printer Buffer** ***NEW!***

JOHNATHON FREEMAN DESIGNS



The **UBUFFER Universal Printer Buffer** is a hi-speed data buffer that accepts data at a high rate, and then outputs this data to your printer. You save valuable computer time. The UBUFFER can be connected to practically any computer or printer. There are four possible combinations: 1) Serial to Serial, 2) Serial to Parallel, 3) Parallel to Parallel, 4) Parallel to Serial. Manual included. Size: 9-1/3"L x 4⅛"W x 1½"H

UBUFFER-64K . . . $199.95
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IBM Compatible!
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Documentation Included

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Complete with power supply, switch, power cord, fuseholder and connectors.

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DDE-2HH. $79.95
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Houses 1 Hard Disk Drive

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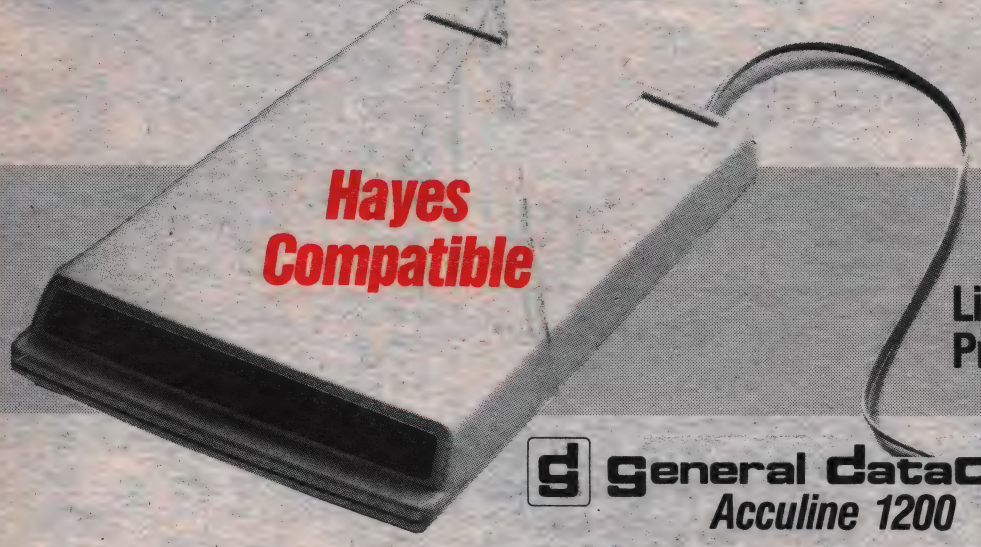

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Acculine 1200

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- 2 Year Factory Warranty!

Runs Smartcom, PC-Talk, Crosstalk and Many More!

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- LED Display
- Built-in Speaker
- External, RS232-C Interface
- 2 Year Warranty
- FCC Registered

Communications Software

- Easy to Use — So easy you may not even need the manual!
- Single Key Auto Dial and Auto Logon
- Menu Driven and Command Driven
- File Transfer, Complete with error correction
- Macro Strings — Define up to 36 pre-arranged phrases, each with a 2 key command
- Printer Control, continuous or page-at-a-time

Specifications

Data Rates: 1200 bps, 0 to 300 bps
Data Format: Serial binary; asynchronous; 7 or 8 data bit; 1 or 2 stop bits; odd, even or no parity.
LED Indicators: Terminal ready, modem ready, carrier on, send data, receive data, automatic answer, test mode, high speed.
Diagnostics: Analog loopback, digital loopback, self-test.
Compatibility: Bell 103, 113, 212.
Connectors: Power cord and telephone cord included.
Power: 117 VAC ± 10%, 60 Hz; UL listed.
Size: 1.4" x 6.9" x 10.4"

100% Satisfaction Guarantee
Full 2 year warranty plus 15 day trial. If you are not completely satisfied for any reason, simply call within 15 days for a complete refund.

Quantity Discounts Available

When ordering, please specify ***Product#GD500-C7.***
Add $9 shipping per modem.

Order Toll Free!
1-800-545-7447

Or Send Check or Money Order To

BCE Authorized Liquidators
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(202) 944-3900

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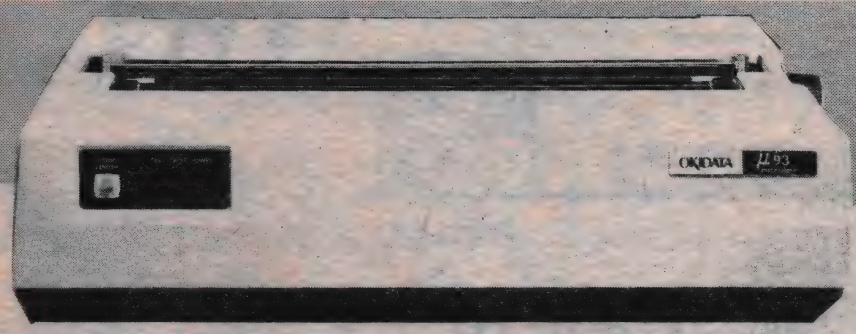
Printer Liquidation!

OKIDATA ML93
Wide Carriage NLQ Printer

65% OFF



Mfr. Retail ~~$799.00~~

Liquidation Price $279

- 160 CPS Bidirectional Printing
- Tractorfeed
- Complete IBM Character Set
- IBM Plug 'n Play PROM Included
- Heavy Duty Steel Chassis

Features

- 160 CPS Bi-Directional Printing
- 40 CPS Near Letter Quality Printing
- Complete IBM Character Set Using Plug 'n Play Prom *(Included)*
- Enhanced, Emphasized and Expanded printing
- 136 Columns with Standard Printing
- 233 Columns with Condensed Characters
- 163 Columns with 12 CPI
- 9-Pin, Long-Life Print Head
- Form Length Selectable From Front Panel
- Superscripts and Subscripts
- True Descenders
- Underlining
- Proportional Spacing
- Horizontal Tabs
- Six Program-Selectable Character Sizes
- 6 and 8 Lines Per Inch Vertical Spacing
- Tractor and Friction Feed Paper Handling
- Self Test, Operator Accessible
- All Points Addressable Graphics
- 90 Day Warranty, Parts and Labor; *1 Year Warranty on Print Head*
- Nationwide Service Available

Quantity Discounts Available

Specifications:

Print Speed: Draft Mode 160 cps; Emphasized and enhanced mode 80 cps; Near letter quality mode 40 cps.
Print Method: Dot matrix impact, bi-directional, short line seeking.
Interface: Centronics parallel.
Character Matrix: 9x9 Draft; 9x17 Near letter quality
Characters Per Line: Variable—233 to 68.
Graphics: All Points Addressable graphics 60x72 dpi, 72x72 dpi.
Maximum Width of Paper: 15" (16" with tractor feed).
Ribbon: Genuine Okidata Spool type (Part #52100701).
MTBF: 4000 hours.
Power: 90 watts.
Physical Dimensions: Size: 20.1"(W) x 12.9"(D) x 5.2"(H); Weight: 30.9 lbs.

100% Satisfaction Guarantee

Full 90 day warranty on parts and labor and 1 year warranty on printhead from Okidata, plus 15 day trial. If you are not completely satisfied with this printer for any reason, simply call to return it within 15 days of receipt for a complete refund.

Print Samples

Near Letter Quality

```
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
0123456789 {|}~¡"#$%&' :;<=>?@
```

Condensed

```
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
0123456789 {|}~¡"#$%&' :;(=)?@
```

Draft

```
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
0123456789 {|}~¡"#$%&' ()*+,-./
```

Elite

```
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
0123456789 {|}~¡"#$%&' ()*+,-.
```

When ordering, please specify **Product #OK93-C7.**
Please add $22 shipping and handling per printer.

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Or Send Check Or Money Order To

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Washington, DC 20007

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1-800-545-7447

Product Information:
1-202-944-3900, 9-5 EST, M-F

Customer Service Inquiries:
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BCE LEADING EDGE®

IBM® AT Compatible

Leading Edge® M-H

- 30 Meg Hard Drive
- 1.2 Meg Floppy Drive
- 1 Meg RAM
- Hi-Res TTL Monochrome Monitor
- AT Style Keyboard

ONLY $2395

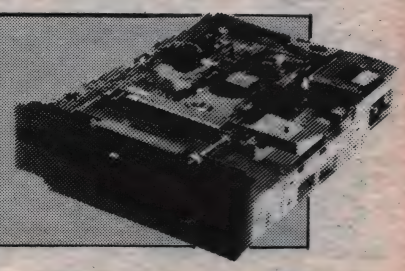
Same as Sperry IT!

Features

- 30 Meg Leading Edge Hard Disk with 39 Millisecond Access Time
- Clock/Calendar with Battery Backup
- Mitsubishi 1.2 Meg Floppy Drive
- 1 Meg RAM
- 3 Speed CPU: 6, 7.16, or 8 MHz
- 6 AT Expansion Slots, 2 8-Bit Slots
- Full Documentation
- MS-DOS 3.1, GW Basic
- Hi-Resolution TTL Monochrome Monitor
- AT Style Keyboard
- Parallel Port
- 2 AT Style Serial Ports
- 195 Watt Power Supply
- 1 Year Warranty
- Toll Free Technical Support Line

The Leading Edge M-H comes with MS- DOS already installed on the hard disk!

SPECIAL OFFER! Get an additional Mitsubishi 360K half-height floppy drive, installed, for only **$99**



100% Satisfaction Guarantee

Full one year factory warranty plus 15 day trial. If you are not satisfied with this computer for any reason, simply call within 15 days for a complete refund.

Quantity Discounts Available

Order Today! Quantities Limited —

Ordering Information

Product #	Item	Price	Shipping
MH300-C7	Leading Edge M-H	$2395	$39
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Call Toll Free to Charge

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VISA Order Toll Free MasterCard

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Product Information:
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30 MB Hard Drive For IBM® AT and Compatibles

ONLY $349

FROM Leading Edge®

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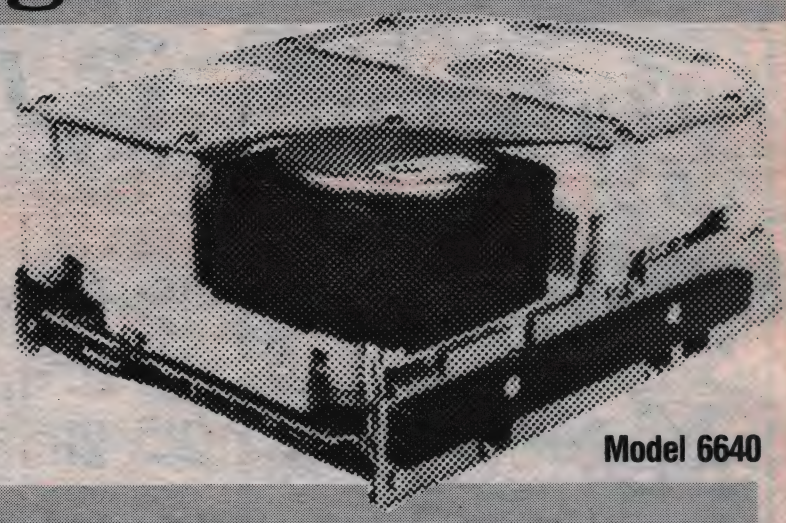

Model 6640

- Full Height Fixed Drive with IBM Rails, IBM Shock Mounts, IBM Full Height Bezels & Cables.
- 39 MSec Average Access Time
- 30 MB Formatted Capacity

15 Month Warranty!

100% Satisfaction Guarantee

Full 15 month factory warranty from Leading Edge, plus 30 day guarantee from BCE. If you are not completely satisfied with this drive for any reason, simply call within 15 days of receipt for a complete refund.

Why Such A Bargain?

These are high quality, fully guaranteed AT compatible disk drives. They come with a full 15 month warranty from Leading Edge, as well as their free customer service facilities.

How can we sell them so inexpensively? The answer is simple. You can benefit from a major marketing problem that the manufacturer had with a different drive. The manufacturer, CMI, made the 20 meg drives for the early IBM AT's. There were many problems with that particular drive when used with the IBM controller card and DOS 3.0. These problems led CMI to acquire a bad reputation for their 20 meg drives which, unfortunately, carried over to their trouble free 30 meg drives.

Because of the bad reputation of the 20 meg drives, Leading Edge was able to acquire the trouble free 30 meg drives at a great price and we're able to pass along the savings to you.

These drives are totally different from the 20 meg drives that were used in the early AT's. They have vastly improved hardware and firmware for positioning and tracking of the drive head as well as improved shielding around the drive itself. Each drive is individually tested before being shipped. They have a mean time between failures of 12,000 power-on hours, and are so reliable that Leading Edge is willing to warranty them for 15 months.

In addition we give you our own 15 day 100% satisfaction guarantee. If you are not 100% satisfied, simply return it for a complete refund. What could be more fair?

When ordering, please specify **Product #LD200-C7. Please add $12 shipping and insurance per drive.**

Call Toll Free to Charge

1-800-545-7447

Or Send Check Or Money Order To

Quantity Discounts Available

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LIFETIME WARRANTY

Factory sealed in packs of TEN with white Tyvek Sleeves, Write Protect Tabs and ID Labels.

Single Side Double Density **.54 ea.** (MIN. 50)

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LIFETIME WARRANTY

3M

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D-Side 96tpi	19.75	DC 300 XL	19.55	S-Side S-Den.	15.40
HIGH DEN.	22.90	DC300XLP	19.85	S-Side D-Den.	18.95
		DC 600A	22.00	D-Side D-Den.	20.95
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LIFETIME WARRANTY

Verbatim®

5 & 10 Box Quanity Discounts

5¼" Disks		Digital Cassettes		3½" Disks	
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D-Side D-Den.	10.95	R300	3.85	D-Side	21.95
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HIGH DEN.	22.80	MI 50	4.90	S-Side D-Den.	17.95
		HD 10	7.95	D-Side D-Den.	20.95
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Dysan® CORPORATION

LIFETIME WARRANTY

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5¼"		8"		Dysan™ Interrogator
D-Side D-Den.	17.95	S-Side S-Den.	17.95	97.95 ea.
S-Side 96tpi	20.95	S-Side D-Den.	19.95	PC DRIVE ANALYZER
RX 50 Format	21.95	D-Side D-Den.	22.95	
D-Side 96tpi	25.95			
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3½" Available

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D-Side 96tpi	19.75	S-Side D-Den.	19.95
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LIFETIME WARRANTY

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Quanity Discounts Availiable

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STANDARD GRADE	ULTRA-HIGH GRADE
T120 L750 4.69	T120-UHG L750-UHG 6.49

3½" SINGLE	3½" DOUBLE	5½" High Density
14.75	21.95	22.95

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S-Side D-Density	D-Side D-Density
5.95 PER BOX	6.95 PER BOX

(MINIMUM FIVE BOXES)

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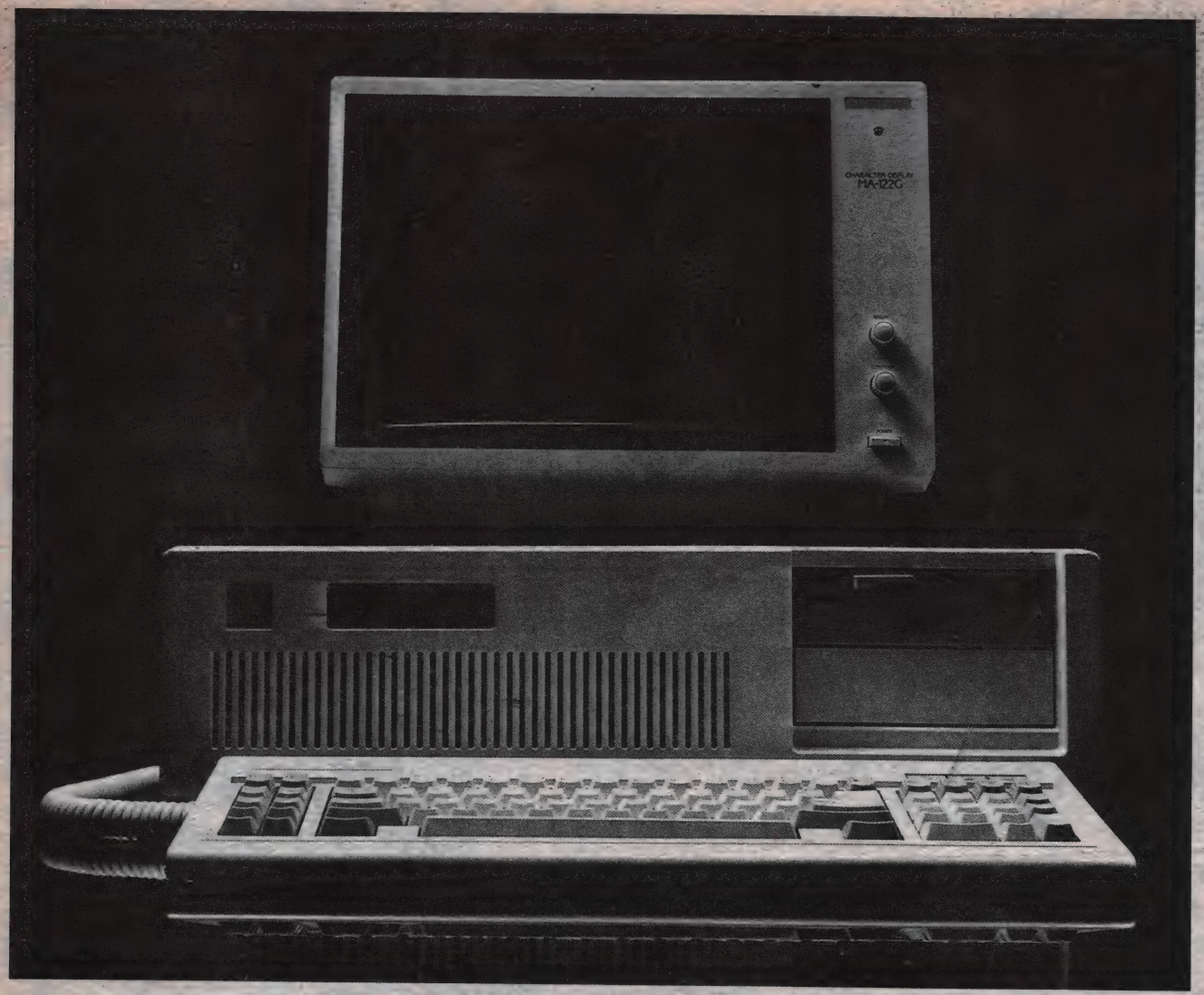
- Nevada 1-800-621-6221 P.O. Box 1213 Boulder City, NV. 89005

TERMS: (Order Total, 30.00 min.) VISA or MasterCard accepted C.O.D. orders add 2.00 for special handling. SHIPPING: 3½ & 5¼ Diskettes; Add 3.00 for every 100 Diskettes or any fraction thereof. 8" Diskettes; Add 4.00 for every 100 Diskettes or any fraction thereof. We ship UPS; orders requiring other delivery methods add shipping, plus 2% of total order.



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- ☐ Mono or Color Graphics Card
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- ☐ Parallel Printer Port
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- ☐ Full (1) One Year Warranty

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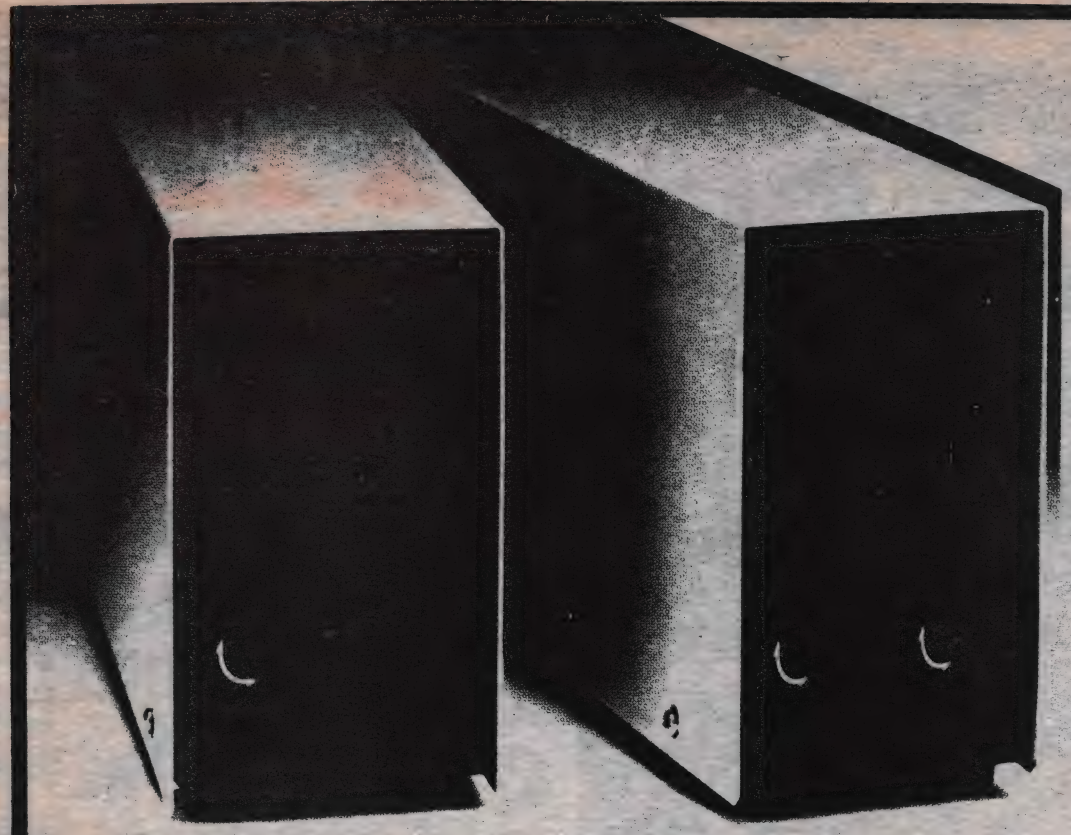

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star

only

SG-10

$219.95

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NEW HARD DRIVES

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10 meg with controller & cable	NEW LOW PRICE	
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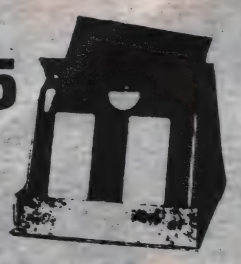
Plastic library case supplied with all diskettes

17.95
10 Diskettes



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BULK DISKETTES

5¼" SSDD

55¢

Min. order 50

Includes tyvek sleeves, and reinforced hubs.

3½" SSDD

$1.75

Min. order 25

BULK DISKETTES

5¼" DSDD

65¢

Min. order 50

Includes tyvek sleeves, and reinforced hubs.

3½" DSDD

$1.89

Min. order 25

BULK DISKETTES

5¼" DSDD-HD

$1.89

Min. order 50

Includes tyvek sleeves, and reinforced hubs.

LABEL KITS

(Package of 12 labels with tabs)

1-20 25¢ | 21-50 20¢ | 51 or more 15¢

PANASONIC PRINTERS

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KXP-1091 120 CPS, 22 NLQ, DOT MATRIX	$233.00	$399.00
KXP-1092 180 CPS, 25 NLQ, DOT MATRIX	375.00	599.00
KXP 1592 180 CPS, 38 NLQ, DOT MATRIX	CALL	CALL
KXP-3131 17 CPS, DAISY WHEEL	269.00	499.00
KXP-3151 22 CPS, DAISY WHEEL, WIDE CARRIAGE	399.00	659.00

Modems

	SALE	LIST
Volks one (300 baud)	55.95	79.95

Smart Modems

Anchor Automation™

Volksmodem 12 300/1200 baud	169.00	299.00
†Signalman Express 300/1200 baud)	219.00	439.00
Express i w/software (Internal 300/1200 baud)	169.00	299.00
Error Free Device	149.00	199.00
Computer Mailbox A modern message center with 64k buffer.	169.00	299.00
Lightning 24 (300/1200/2400 baud)	359.00	599.00

†While supplies last.

Dealer inquiries welcome.
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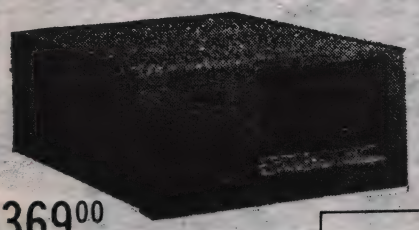

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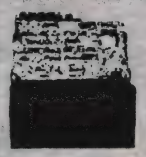
- 5 Expansion slots



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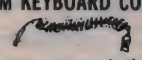

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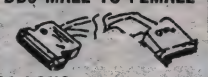

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MFG. BY ELSTON COMMODORE SURPLUS 12" GREEN SCREEN MONITOR

Composite video input built in power supply. Requires 18VAC XFMR.
Useable on IBM's $19.95
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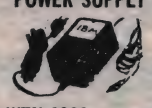

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11.5 VDC @ 1.95 AMP
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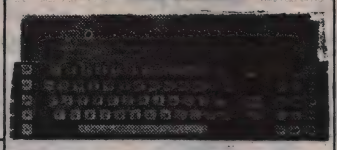

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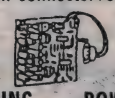
PS-4A



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INPUT: 14 VAC to 25.5 VAC
OUTPUT: +12VDC@350MA
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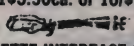
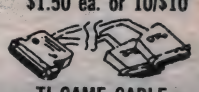
TN-21—used with the above power supply. Output 21VAC @ 45VA.
TN-21 $3.50ea. or 10/$19.95



CASSETTE INTERFACE CABLE
CAB-93—has DB-9 connector on one side to 3 RCA phono jacks on the other end.
$1.50 ea. or 10/$10



TI GAME CABLE
CIC-15—one end has a DB25 female going to 2 DB15 female connectors. Cable is 6' long $4

EAGLE TTL MONITOR & FRAME — GREEN HIGH RESOLUTION

12" Monitor mfg. by Panasonic originally used in Eagle Comp. monitors. Complete w/frame. Requires 12VDC @ 1AMP power. Schematic included.
Stk# K224E4B $24.95

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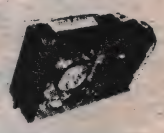
8" SHUGART SA801 $65.00



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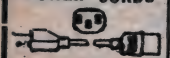

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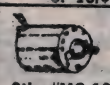

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Input: 120VAC
Output: 12VAC CT @ 1.7AMP
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Vinyl Diskette Holder
Holds 2-5¼" diskettes. Has 3 hole punch to mount in standard loose leaf folder. Stk. #1 VIN-5
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For standard 8½x11

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CERAMIC MONOLYTHIC CAPS. FOR ALL TYPES OF COMPUTER APPLICATIONS. ULTRA STABLE.

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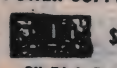
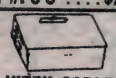
All Types Incl.

8" DRIVE POWER SUPPLIES



$24.50

8" Disk Drive Power Supply
Heavy duty supply can run up to 4 drives. Enclosed frame. Input 117VAC. Output: 5VDC @ 7 Amps: +24VDC @ 6 Amps: —24VDC @ 6 Amps.
Stk. #PS-8 ....$24.50



VITEK CABLE CONVERTER
Model No. TC-1M Converter. Both Mid-Band & VHF frequencies. Has built in power supply. Units are new & in working cond.
Stk. #TC-1M $9.95

1000 PIECE RESISTOR ASS'T ALL SIZES & VALUES
Stk. #RES-1000 .$3.00

$6.95
OUTDOOR SPEAKER - HORN Stk. #Spkr-60

XEROX 1810 CPM BOOT DISK $3.75

$1.75
PLASTIC ENCLOSURE
2"x3"x4"

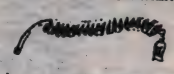
STANDARD 6' 3 PRONG LINE CORD $.40 #CRD 6

DIABLO TYPE 30 POWER SUPPLIES
115VE 8amps
$15.00

ALTOS 8000 COMP. $250

100 PC ASSORTMENT RF COILS $3.50

COILED CORD BONANZA



4 conductor coiled cord. Black vinyl jacket. Extends to 6 ft. No connectors on either end.
Stk. #CC-000 ....3/$1.00
4 Conductor coiled cord. Black vinyl jacket. Extends to 6 ft. Phone connector on one end and no connector on the other.
Stk. #CC-020 ....2/$1.00
4 Conductor coiled cord. Grey vinyl jacket. Extends to 6 ft. Used as keyboard cable. Phone jack to 5 pin din connector.
Stk. #CC-100 .....$4.00

BUILD YOUR OWN EPROM ERASER
115VAC BLACK LIGHT (ULTRA VIOLET)

115 volt ultra violet light, with lamp, ballast and in-line cord switch. Just build enclosure to finish.
Stk. #EPB-125.....$12.50

TI COMPUTER FLOPPY DRIVE CABLES

SINGLE FLOPPY DRIVE CABLE
Cable is 15" long with 34 pin card edge & 34 pin header conn.
CFS-15 .....$2.00 ea or 10/$14

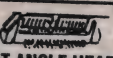
DUAL FLOPPY CABLE
Cable is 34" long w/3 34 pin edge connectors.
CFS-30 .....$4.00 ea or 10/$25

POWER SUPPLY
MFG. BY GENERAL INSTR.

Input: 110VAC
Output: +5VDC @ 5Amps
+12VDC @ 2.5Amps
—12VDC @ 3Amps
PS-120.....$19.95
Used in some Commodore comp.

WALL PLUG ADAPTERS
6VDC @ 300ma
$1.75 or 10/$12.50

ISOLATION TRANSFORMER
117VAC
117VAC @ 125VAC
Mfg. by Signal Trans
$3.00 each — 10/$20.00



RIGHT ANGLE HEADERS
40 pin.....$.40
34 pin.....$.50
10 pin.....$.25

TRANSFORMERS

STK.#	PRI (VAC)	Secondary (VAC)	Price
TN-6.3	117	6.3 @ 300ma	$.125
TN-12	117	12 @ 400ma	$.135
TN-24A	117	24 @ 200ma	$.125
TN-24B	117	24ct. @ 3.6 Amp	$3.50

HEAT SINK TO-3 $.25

LOAR RESISTOR FOR IBM POWER SUP.

5 Ohm @
25 Watts
$1.79
Stk.#RIBM-5

12 VAC @ 250ma TRANSFORMER TN12A 2/$1.50

WIRE
TEST PROBE WIRE
18 Guarage rubber coated. Red, black, white or blue.....100'/$13

HOOK-UP WIRE
24 Guage standard cond.
22 guage solid conductor, your choice 100"/$2
WIRE WRAP WIRE
30 Guage solid cond. Choice of colors. Wir-30
.....100'/$2.50

TOCOM 55 PLUS CABLE TV CONVERTER
55 CHANNEL CONVERTER
Mainboard — $7.50
Power supp. — $4.50
We Received A Large Shipment Of These Cable Converters. Good Savings!

RADIO SHACK BROKEN BOARDS TRS-80 MOD III 5/$10.00

TV-GAME SWITCH
$.65 EACH
OR 10/$4.25

ELECTRONIC COMPONENT BONANZA

STOCK#	DESCRIPTION	PRICE
Res20	Power res. ass't. 20pcs	$2.29
Res100	Precision res. assort. 1% & 2% types. 100 pcs.	$2.59
Res1000	Res. assort. 1000pcs. All sizes & values	$3.25
Re100p	100 miniature trimpots, pc mount	$4.79
Re25p	25 tv and radio pots. Good selection	$2.79
Re25g	25 ganged pots. Hard to find types	$3.25
Ch35	Miniature choke coils, 35pcs. many values	$2.79
Ch15	Slug tuned if coils, 15 pcs.	$2.29
Ch20	Open wound tuning coils, 20pcs.	$2.29
Ch10	Transfmr style choke. 60mh, 10 pcs.	$2.29
Cp100	100pc. electrolytic assort. Great values	$3.37
Cp100d	Ceramic disc caps, 100pcs., great values	$2.59
Cp25hv	High voltage disc-caps, 1Kv min. 25 pcs.	$2.79
Cp25p	25pcs. polystyrene caps, high stability	$1.79
Cp685	Nichicon 6800mf-@50v, 12 pcs.	$2.75
*Cp316	Mepco 3000mf.@16v, low est. 12 pcs.	$3.75
Cp12s	Mallory low esr switching caps. 10pcs.	$3.75
Cp100ma	100 mylar bypass & coupling caps. Axial	$3.75
Cp100mr	100 mylar bypass & coupling caps. Radial	$4.25
Cp25t	Tantalum assortment, 25pcs.	$3.55
Cp25dm	25pc. dipped mica cap. assortment	$2.79
Cp13cg	Mallory computer grade caps. 13pcs.	$4.79
Di100g	100 germanium diodes, in34 etc.	$2.25
Di100s	100 silicon diodes, in4148 types, etc.	$2.25
Di15p	15pcs. power diodes. 2 amps & above	$2.75
Q50m	50 Magnavox tv replacement transistors	$3.79
Q100a	100 small signal transistors. Pnp & npn	$4.79
Q150r	150 rf transistors. Metal can, unmarked	$1.79
Q10p	TO-220 power transistors. 10pcs. pnp & npn	$2.29
F3	6' inline fuse holder w/3amp fuse, 3 pcs.	$.99
Cb10	10 airpax circuit breakers, 3 to 25amps	$4.49
Cn30m	30pc molex connector & socket assortment	$3.49
Bs25	25pc. barrier strip assort. 2 to 20 connects	$2.55
Wr100	100' connecting & hook-up wire. All guages	$2.25
Xo3	3 pcs. speaker crossover networks	$1.59
Sp2	Pair of 6x9 car speakers	$4.79
Rel10	10pc. relay assortment. Ac & dc types	$3.79
Jk25	25pc. audio jack & connector assort.	$2.59
Sw25	Slide switch assortment, many sizes, 25 pcs.	$2.59
Sk16	100pcs. 16 pin IC sock. Staggered pins	$2.25
Sk14	100 pcs. 14 pin IC sock. Staggered pins	$2.25

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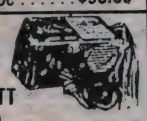
13933 NO. CENTRAL #212
DALLAS, TX 75243
214-234-8032
214-234-8091
214-234-8105

TERMS: Check or Money Order. COD's Add $1.90. TX Res. add 6% Tax. Please add $3.50 shipping. All out of stock items will be refunded.

KEYBOARD

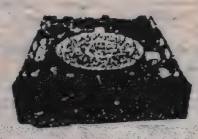
For AT or XT
Switch Selectable
5150 Type $79.95
5151 Type $95.00

POWER SUPPLY



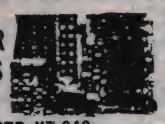
135 WATT
$69.00

DISK DRIVES



Qume 142 .....$79.95
Maple DSDD $84.95
Fujitsu DSDD ...$94.95

IBM XT™ COMPATIBLE PARTS



MOTHER BOARDS

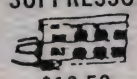
STD XT-640
640K Max., 4.7 MHZ, 8 I/O slots, with 0 Mem. $115

TURBO XT-640-7
640K Max., 5/7 MHZ, 2-layer board, tested with 9 mem.$130

TURBO XT-640-8A
640K Max., 5/8 MHZ, 2-layer board, tested with 0 mem.$135

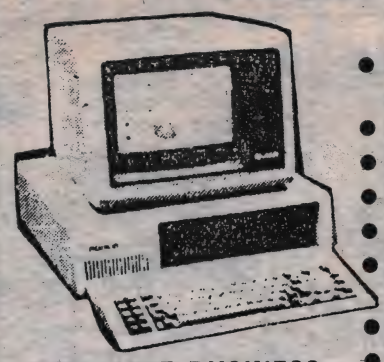
SUPER TURBO XT-640-8B
640K Max., 5/8 MHZ, 4-layer board, tested with 0 mem.$165

6 OUTLET SURGE SUPPRESSOR



$13.50

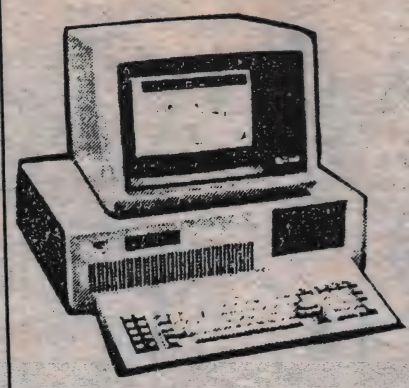
3RD GENERATION TURBO SYSTEM



- Super 4-layer MBD running @ 8MHZ
- Single DSDD Drive
- 640K Memory
- Fast BIOS
- Ser, Parallel, Game, Clk.-Cal.
- Monochrome card & high res. monitor
- Cybex DOS manual
- Step 1 business accounting software: Accts. Rec., Payable, General Ledger, Inventory

COMPLETE BUSINESS SYSTEM
$1595.00

AT BUSINESS SYSTEM



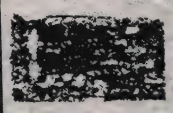
IBM® AT CLONE SYSTEM

- 80286 Process @ 8 MHZ
- 640K RAM (1 meg. max)
- 20 Meg. hard drive
- Dual floppy drives
- Monochrome graphics
- High Res. monochrome monitor
- I/O Ports
- Step 1 Business Accounting Sftwre. w/Accounts Rec., Accounts Payable, General Ledger, Inv. Control. ($1300 Value)

$2395.00

SUPER EXTERNAL EPROM PROGRAMMER — $129.95

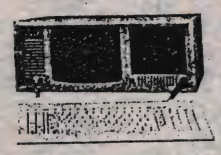
- Connects thru parallel port
- 2716-27512 & MCM 68764 & all "A" Series EPROMS



- External power supply

Note! It is illegal to use this to copy IBM ROM sets

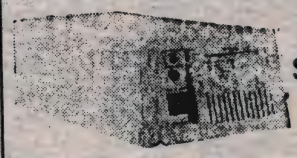
BRAND NEW PC/XT PORTABLE!



Case, Keyboard, 135 Watt supply, monitor & all hardware.
- Green TTL Monitor
- Keyed power switch
- Hardware reset switch
- Mounts standard XT motherboard
- 3 disk drive slots

Stk# PH-16 .....$485

200 WATT UNINTERRUPTABLE



POWER SUPPLY 200W

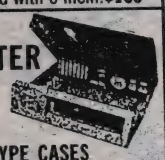
For IBM Systems **$269.00**

FORMAT YOUR 20 MEG DRIVE TO 30 MEG!

Special Adeptec high density controller will format STD 20 meg. drive to full 30 megs.

Stk# HDC-800 .....$189.95

COMPUTER CASES $39.95



XT TYPE CASES
IBM Look-A-Like Case
- Requires side switch power supply
- For exact IBM foot print boards only
- 8 slots in rear

Case 50 — Slide Cover
Case 60 — Flip Top

MODEMS

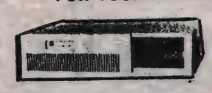
EVEREX
300-1200
INTERNAL
HAYES COMPAT.
$149.00

BULK DSDD DISKETTES $50/100

HARD DISK DRIVES

20 Meg half high w/controller	$425
10 meg drive & controller	$320
20 meg drive only	$3
10 meg drive only	$2
Controller with cables	$129
20 meg AT drive (40Msec)	$535
40 meg AT drive (40Msec)	$695

AT STYLE CASE FOR YOUR XT MOTHERBOARD



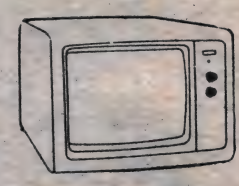
NEW

$95

- Same Dimensions as XT case
- LED Indicators & key lock
- Complete mounting hardware

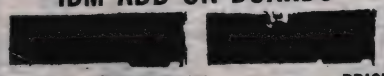
Stk# CASE-75

MONITORS



Samsung Green composite	$62.95
Samsung Amber Composite	$62.95
Center Green TTL	$89.95
Center Amber TTL	$89.95
Mitsubishi RGB	$325
Magnavox RGB	$235

IBM ADD ON BOARDS

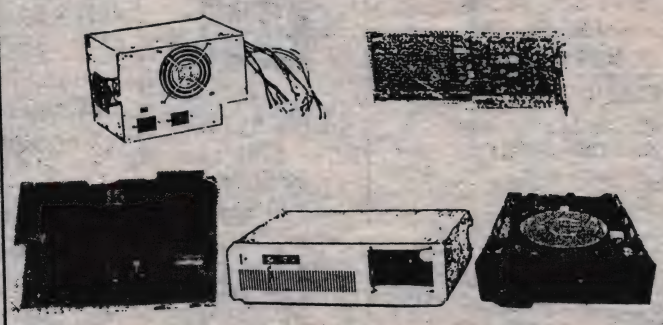


STOCK#	DESCRIPTION	PRICE
FDC-501	Floppy disk controller w/cable - 4 drives	$38
FDC-507	Floppy Cont. w/serial, parallel & clock	$99
HDC-515	Hard disk controller w/cables	$125
VID-401	Color Graphics Cards, IBM Specs	$60
VID-405	Magic Video card w/TTL, RGB, & Composite outputs 640x400 color, 640x352 monochrome	$185
VID-406	Monochrome (TTL) card	$75
VID-408	Hi-Res mono/graphics w/printer port Hercules compatible	$85
SIO-250	Serial port card (second serial opt.)	$35
PIO-255	Parallel printer card	$29
MFC-110	Short I/O, parallel, serial, clk/cal	$99
MFC-100	Multi-funct. w/para., ser., clok/cal & 384K Exp. No mem. installed, software	$90
MFC-120	576K memory expansion board (short card)	$39
EP-128	EPROM burner board, for IBM (2716-27128)	$129
RD-2	Bus Receiver & driver boards for exp. chasis	$149

V-20 SPEED-UP

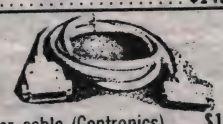
5MHZ — $14.95
8MHZ — $19.95

AT PARTS CENTER



STOCK#	AT SYSTEM COMPONENTS	PRICE
MBD-AT	AT clone motherbd., dual speed (6&8 MHZ), 1 meg RAM, 0 wait state, clock, bios included, with 640K installed	$695
HDC-525	Combination hard & floppy disk contr., mfg. by NCL, 4-layer bd.	$195
CAB-525	Cable set for above controller	$20
HDC-526	AT controller for hard disk only by NCL, 16 bit bus.	$169
VID-425	Enhanced graphics adapter	$295
MFC-3002	Multi-func. w/para, ser., & 2 meg memory exp. capability, w/OK mem.	$225
MFC-110	Serial, Parallel & game ports	$85
PS-200	AT Power Supply-200 watt	$135
KYB-MAXI	Maxiswitch keyboard for AT or XT	$75
CASE-90	Case for AT-slide type	$89
TFDD-1.2	Teac 1.2Meg floppy drive	$135
MFDD-360	Maple DSDD disk drive	$89
ST-4038	Seagate Fast 40 meg hard disk	$645

CABLES FOR IBM SYSTEMS



CAB-800	IBM Printer cable (Centronics)	$10
CAB-825	Serial cable, 6', DB25 male to male	$10
CAB-835	Serial cable, 6', DB25 male to fem.	$10
CAB-600	RGB Ext. cable, 6', DB9 male to fem	$10
CAB-500	6' keyboard ext. cable	$5
CAB-550	6' composite video cable	$2
CAB-600	Special 8 pin RGB to DB9 cable	$13
CAB-300	6' IBM power cable	$3
CAB-875	IBM/AT serial port cable	$20
CAB-400	Dual 5.25" disk drive cable	$17
CAB-425	Hard disk cable set	$10
CAB-450	AT cable set (hard & floppy)	$25

NEW ROM SETS FOR XT's & AT's

IMPROVED SPEED

Speed-up Bios for standard motherboard. If your system takes a long time to run format or diskcopy", this ROM's for you.

Stk# BROM-35.....$14.95

NETWORKING BIOS ROM

New ROM lets you run the Novell Network as well as others. Will work in Turbo boards but will not support the Turbo mode.

Stk# BROM-39.....$19.95

TEXAS ROM BIOS

A new 2 chip BIOS set that replaces the BIOS on your XT or Turbo XT motherboard. These eliminate many of the system & parity errors that occur. Also eliminates "lock-up" problems in some Turbo XT boards. IBM compatible.

Stk# BROM-TX $24.95

TURBO XT SUPER ROM

If you think your Turbo board is fast — put this new BIOS ROM in it & hold your socks! This is the fastest ROM we've seen for a Turbo bd. yet.

Stk# BROM-FT $19.95

PUBLIC DOMAIN PROGRAMS — $3.75 DISK

PD#	PROGRAM TITLE
1	PC-File (Data Base)
2	PC-Finance (Accounting)
3	PC-Checkbook
4	PC-Modem (Communications)
5	PC-Spreadsheet
6	Home Finance Program
7	Free Calc - Spreadsheet
8	Pc-Basic (runs Basic prog.)
9	PC-Calculator
10	Point of Sale Program
11	Misc. DOS Super Utilities
12	8087 Sampler Programs
13	Misc Appl., Music, Dates
14	Poor Man's Mouse
15	PC DOS Help
16	Word Proces. for Kids
17	Time & Money - Finance Mngr.
18	PC-Musician
19	Property Mngr. (DBase II)
20	Silly Diagnostics
21	Micro Accounting System
22	File Manager
23	A Cheap Assembler, RAM Disk
24	PC Graphics 1
25	PC Graphics 2
26	Portfolio Evaluation System
27	Newkey - Keyboard Program
28	Star Trek Programs
29	Games 1
30	Games 2
31	Basic Games
32	Basic Games
33	Misc Basic Games
34	Galaxy Trek w/Graphics
35	CPU Speed Test
36	Benchmarks

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TERMS: Check or Money Order. COD's Add $1.90. TX Res. add 6% Tax. Please add $3.50 shipping. All out of stock items will be refunded.

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ST. LOUIS — 314-291-0114

QUALITY PRODUCTS & TECH SUPPORT

PREFERRED Source

SLIM HARD DRIVES 1

For IBM PC/XT and true compatibles. Ideal for Compaq and other portables, these half height internal systems are low-power, reliable performers. The Rodime is a shock mounted 3½" type. The Seagate features a 65ms avg access speed. Full height panel for Rodime is $15, for Seagate $3.

ST213 10mb system $389
RO252 10mb system $442
ST225 20mb system $449

FAST HARD DRIVES

For IBM XT/AT and true compatibles. These are top quality, full height, 55ms drives with Rodime reliability.

RO202E 20 mb AT system $436
RO203E 30mb AT system $550
RO204E 40mb AT system $699

Includes AT rails and cable. For XT system w/controller and cables, add $119. All drives are tested and pre-formatted.

FASTER HARD DRIVES 2

You can break the 32mb DOS barrier with our $99 Disk Manager Software and these high capacity drives. The Seagate ST4000 models are 39ms avg. access; the Vertex V100 series is an even faster 30ms! These full height drives feature voice-coil and auto-park technology, and are ideal for high performance applications.

ST 4026 20mb AT system ..... $ 564
ST 4038 30mb AT system ..... $ 659
ST 4051 40mb AT system ..... $ 775
V170 60mb AT system $1547
V185 62mb AT system $1570

Includes AT rails and cable. For XT system w/controller and cables, add $119. All drives tested and pre-formatted.

HARD DISK SOFTWARE 3

HDTEST, by Gallery 6

HDTEST is a great software tool for the professional who installs or reformats hard drives in PC/XT/AT and compatibles. It features a sophisticated bad-track scan, and complete control of test setup including interleave, step code, autoconfig, drive type, etc. HDTEST was designed by disk drive experts for production quality control, so you know it's fast and thorough (100% machine language). This new software is far superior to other programs on the market. Includes a free PARK program. Order HDTEST today, you'll love it! Only ..... $ 99

PARK available separately for $9.95

DISK MANAGER, by OnTrack

Enables you to break the 32mb DOS barrier! This powerful software initializes, partitions, and formats your fixed disk subsystem with up to 250mb per DOS partition! Another key feature is support for drive types not included in the XT and AT ROM's, giving you a full 62mb with our V185 drive (the AT ROM only gives you 52mb). In stock, so you can order today. $99

TAPE BACKUP SYSTEMS 4

IRWIN 100 SERIES

The industry standard tape backup for IBM and true compatibles. These are half height, low-power systems which run on your floppy controller. Software is included. The 10mb will work with PC/XT/AT. The 20mb will work with AT only.

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Irwin 20mb w/tape $558

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DEI-555 55mb $22
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HARD DISK CONTROLLERS 5

WD HARD DISK CONTROLLER FOR PC/XT

The Western Digital WX2 card is fast, low power, and reliable. Included is the auto-configure BIOS ROM that allows keyboard entry of drive type and parameters, and supports drive partitioning. Recommended for use with PC DOS 2.1 or 3.1 ..... $109

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The WA2 is the improved version of the original IBM AT controller. Perfect for compatibles and AT replacement. Our price! $199

VISUAL QUALITY 6

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CARDS for PC/XT/AT 7

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EX-2000 aligns/repairs floppy drives with standard interface. Capable of writing or erasing to any track, finding alignment tracks with a single keystroke, and instantaneous and average speed checks. Top quality European keys, gold connectors, and easy scope hook-up to INDEX, READ/WRITE DATA, MOTOR ON make the EX2000 a fast and reliable tech tool. Requires: alignment disk for reference waveforms, scope for visual feedback, and the drive's service manual. An EX-cellent value at $299.00

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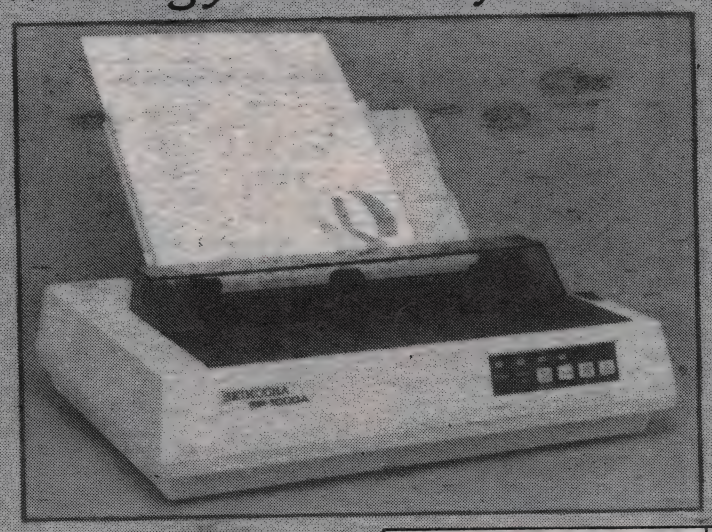
SEIKOSHA SP-1000 PRINTER



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PRINTOUT SAMPLE

789:;<=>?@ABCDEF
<=>?@ABCDEFGHIJKLM
789:;<=>?@ABCDEFGHI
/0123456789:;<=>?@ABCDEFGHI
789:;<=>?@ABCDEF
<=>?@ABCDEFGHIJKLM
789:;<=>?@ABCDEFGHI
EFGHIJKL
789:;<=>?@ABCD EFGHIJKLMNOPQ

In order to keep your loyalty we at MidWest Micro are always looking for more printer and less price. In that search we've found for you a real gem in the price/performance arena. The Seikosha SP-1000 is made with the same precision and durability you have come to expect from the quality leader in the watch industry – Seiko.

The SP-1000 is completely full featured with the latest advances incorporated. It provides excellent near letter quality printing with a dense 24 by 18 dot density. This equates to 41,472 addressable dots per inch and gives superb "typewriter like" printing. Other printers with resolution this high cost hundreds of dollars more.

With the SP-1000 your computer can print 40, 48, 68, 80 or 136 characters per line. It can print 35 separate character styles including 13 double width and 3 reversed styles. You get Pica, Elite, Condensed and Italics – plus true superscripts and subscripts. All this can be done automatically, through easy commands right from your keyboard.

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SP-1000 Series

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• **SP-1000AP,** Apple® IIC/Macintosh™ compatible	239

Features

- Impact dot matrix method, bi-directional in logic seeking, unidirectional in graphic printing
- 100 (Draft mode), 20 cps (Near Letter Quality) print speed, with reduced noise level
- Pin-feed or friction-feed available
- Automatic paper loading function
- Paper empty detection
- Input data dump in hexadecimal
- Right, left margin set function
- Self test printing
- A variety of functions including Underline, Bold print, Double striking
- A variety of print character sets including, Pica, Elite, Proportional, Elongated, Condensed, Italics, Super/Subscripts, and Italic Super/Subscripts
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- Optional intelligent serial interface (#SP-8001D)
- Downloadable Characters
- Standard 1.5K buffer

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Character Font			Character Structure (H x V + Space)	Maximum Column Number	Character Spacing (Character/Inch)	Print Speed (Character/Second)
Standard Character	Standard	Pica	*12x9	80	10	100
		Elite	*12x9	96	12	50
		Condensed	*14x9	137	17	70
	Near Letter Quality	Pica	*24x18	80	10	20
		Elite	*12x18	96	12	24
Italic Cursive Character	Standard	Pica	*16x9	80	10	100
		Elite	*16x9	96	12	50
		Condensed	*18x9	137	17	70
	Near Letter Quality	Pica	*32x18	80	10	20
		Elite	*32x18	96	12	24
Graphic	Single Density Graphic		nx8	480 dot column	—	600 dot column
	Double Density Graphic		nx8	960 dot column	—	490 dot column
	Double Speed, Double Density Graphic		nx8	*960 dot column	—	600 dot column
	Quadruple Density Graphic		nx8	*1920 dot column	—	*980 dot column
	640 Dot Graphic		nx8	640 dot column	—	326 dot column
	576 Dot Graphic		nx8	576 dot column	—	294 dot column
	720 Dot Graphic		nx8	720 dot column	—	367 dot column

*Indicates that the specified figure includes half dots.

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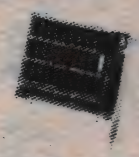

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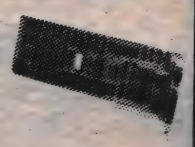

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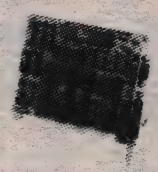

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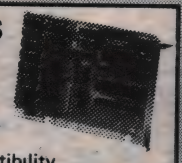

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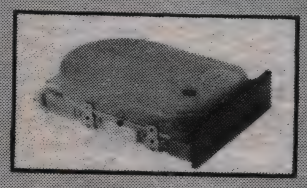

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Western Digital AT Type	259
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If you are looking for a top quality printer at an affordable price, you've found both in the Gemini 10X. The Gemini 10X operates bi-directionally at 120 cps. It switches from standard 80 column printing to 132 column condensed and 96 standard ASCII characters. This gives you the capabilities to do everything from recipes to spreadsheets. The character matrix offered includes the descenders, emphasized, double strike, block graphics and hi and low bit image graphics. These features give the Gemini 10X versatility enough for use in your home or office. The Gemini 10X also features a buffer expandable to 8K that lets you continue to work – not waste your time waiting on your printer. Breakdowns? Virtually unheard of with the Gemini 10X – with a print head life of over 100 million crisp, clean characters. The Gemini 10X comes complete with both friction and adjustable tractor feed. It even includes a free roll paper feed mechanism for greater economy.

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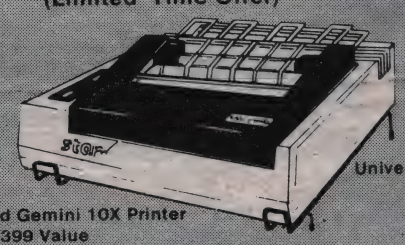

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COMREX™

CR-420

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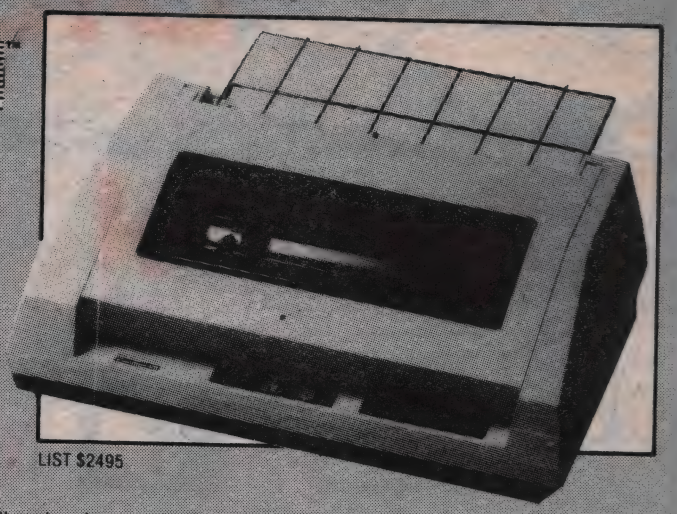
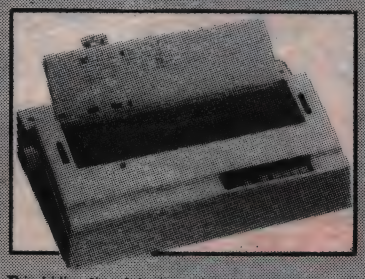


LIST $2495

This stupendous brute of a printer will make short work of even your largest spreadsheets and reports. You will surprise yourself and amaze your friends and colleagues with this super printer performing in your office. Don't miss out on this one!

SPECIFICATIONS

Carriage Width 132 Columns (at 10 pitch)
Print Method: Impact dot matrix, bidirectional, logic seeking in both text and graphics
Print Speed: 420 CPS/Draft; 104 CPS/Correspondence Quality; 2500 dots/sec – standard graphics; 1250 dots/sec – high-density graphics
Print Head: 8-pin, staggered arrangement
Character Sets: Standard 96 ASCII printing in 17 fonts
Line Spacing: n/180 (n=0-255)
Paper Feed: Pin feed (paper width adjustable) and built-in friction feed
Paper Width: 5" to 15" (pin feed); Up to 16" (feed)
Paper Path: Rear and bottom entry
Paper Thickness: Original plus 4 copies (5-part)
Ribbon: Cassette style, single color (black)
Interfaces: Parallel – Centronics-style; Serial –RS232C Asynchronous
Baud Rate: 1200, 2400, 4800, 9600; switch selectable
Protocols: X-ON/X-OFF, READY/BUSY; ETX/ACK, switch selectable
Buffer: 18K
Reliability: MTBF – 800 hours continuous printing; MCBF – 200 million characters; MTTR – 30 minutes
Power: 117 VAC ± 10%, or, 220 VAC ± 10%, 50/60 H_z
Power Consumption: 55W (Standby); 175W (Operating at self test print); 250W (Operating at heaviest duty)
Environmental Limits: Temperature (operating) 5°-40° C, 40°-105° F; Humidity (operating) 20-80%
Dimensions: 595mm (W) x 194mm (H) x 405mm (D); 23.4" (W) x 7.6" (H) x 15.9" (D)
Weight: 27kg; 60 lbs



COMREX™

CR-4

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- Superior Performance
- Fast 36 CPS Print Speed
- 7K Print Buffer
- Continuous Duty Cycle
- Wide 16-5" Paper Carriage

This bidirectional, logic seeking marvel lets you adjust the hammer intensity to print anything from single-page letters to five-part forms with equal clarity. A variety of impressive typestyles give you added print versatility.

It is exceptional in many other ways. The 15½" wide carriage briskly prints all your ledgers, spreadsheets, and extra wide business graphics with ease. With the optional cut sheet feeder and tractor feeder, you can print several copies on your letterhead and switch to pin-fed paper for high volume word or data processing.

The 7K buffer holds a substantial amount of data while its printing.

The average life of the print wheel is 10 million characters. Which means that you can run it eight hours a day — every day of the week — for almost-two full years. Of course, under more normal usage, it will handle your business correspondence and graphics for up to five full years without service. That's impressive.

Quiet quality.
What your eyes don't tell you, your ears will. Because this printer is much quieter than many more expensive printers. So you can keep the noise down while you keep the cost down

Specifications

Print Speed	36 CPS (Shannon text)
Print Wheel	96 petals/wheel, cassette type, ASCII stand *
Print Wheel Life	10 million char./wheel
Characters/Line	132 characters (1/10"), 158 characters (1/2"), 198 characters (1/15")
Paper Width	16.5 in max (419 mm)
Copy Capacity	Original (45 kg) + 4 copies (15 kg) (total thickness 0.35 mm max.)
Carriage Motion	Bidirectional, logic seeking
Carriage Rtrn Speed	750 ms (at 13.2" return)
Line Spacing	6, 4, 3 lines/inch, 1/48" proportional increments
Paper Feed	Bidirectional, logic seeking
Paper Feed Speed	4"/second
Available Ribbons	

	Ribbon Life
Single-strike black carbon film	60,000
Multi-strike black carbon film	150,000
Single-strike black correctable film	70,000
Multi-strike black fabric	500,000
Single-strike red film	2,000
Correction tape	1,500

Interfaces	Centronics – Parallel RS-232C – Serial
Buffer Size	7K
Control Panel	Indicators: Select, Power, Alarm; Line, Pitch, and Copy (LEDs) Switches: Select, Line Feed, TOF, Line, Pitch, and Copy
Noise	Operating – Less than 65 dB
Temperature	50 to 105 F – 10 to 40 C (operating)
Humidity	20% to 80% non-condensing (operating) 5% to 90% non-condensing (storage)
Power	120 V, 60 Hz (Optional: 120 or 220 - 240 V, 50/60 Hz) 130 W Max.
Dimensions	21.18 (W) x 7.65 (H) x 15.15 (D) inches (538(W) x 194.5 (H) x 385 (D) mm)
Weight	33 lbs (15 kg)
Optional Features	Tractor feeder, Auto Cut Sheet Feeder, Single and Multi-strike ribbons, Interchangeable printwheels (Numerous languages and typestyles)

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MEMBER

All equipment shipped factory fresh with manufacturers warranty

HIGH TECHNOLOGY — NOT HIGH PRICES

DISKETTES

Sentinel TECHNOLOGIES

- Thicker, 10 ml. jacket
- 70% clip level
- Tyvek envelopes
- Lifetime warranty
- 100% Certified

	50+	100+
5¼" SS/DD	.77	.74
5¼" DS/DD	.85	.79

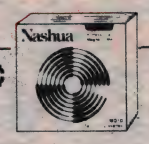
Packaged in poly-bags of 50, sold in increments of 100

■ Lifetime Warranty ■ Thicker, 10 ml. jacket ■ 100% Certified ■ Tyvek sleeves, user labels and write protects

55¢ 400+ 5¼" SS/DD .56¢ 100+

61¢ 400+ 5¼" DS/DD .65¢ 100+

Nashua™



BOXED DISKS AS LOW AS 65¢

- Boxed in tens
- Write protect tabs and labels
- 100% certified

	50+	100+
3½" SS	1.35	1.29
3½" DS	1.89	1.84
5¼" SS/DD	.68	.65
5¼" DS/DD	.75	.69
5¼" HD	2.09	1.99

Packaged in poly-bags of 50, sold in increments of 250.

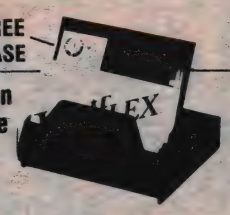
■ Labels and write protects ■ Envelopes

51¢ 500+ 5¼" SS/DD 53¢ 250+

59¢ 500+ 5¼" DS/DD 62¢ 250+

VERIFLEX

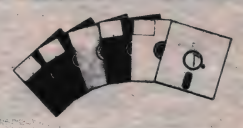
FREE CASE



- Packaged in tens in plastic library case
- 100% Certified
- Lifetime Warranty
- Tyvek envelopes

	50+	100+
5¼" SS/DD	.68¢	.65¢
5¼" DS/DD	.75¢	.69¢

MULTI—COLOR 10-PACKS



each 10-pack has:

1 Dark Blue	1 Yellow
1 Light Blue	1 maroon
1 Green	1 Gray
1 Red	1 Brown
1 Orange	1 Magenta

■ Poly-bagged in tens
■ 10 colored disks ■ Tyvek envelopes
■ Labels and write protects

	100+	400+
5¼" SS/DD	.69	.64
5¼" DS/DD	.75	.69

VERIFLEX BULK

■ Tyvek envelopes
■ 100% error free
■ Labels and write protects

	150+	300+	600+
5¼" SS/DD	49¢	45¢	44¢
5¼" DS/DD	55¢	53¢	49¢

SONY MAC PAC

3½" SS DISKS

$1.39 each Qty 400

$1.42 each, Qty. 100 $1.45 each, Qty. 50

3½" DS DISKS

$1.99 each Qty 400

$2.19 each Qty 100

$2.29 each Qty 50

SONY Boxed in tens

	30+	50+	100+
3½" SS	1.55	1.52	1.49
3½" DS	2.65	2.57	2.55
5¼" SS/DD		.99	.95
5¼" DS/DD		1.19	1.15
5¼" HD		2.79	2.75

maxell

3½" SS DISKS

Packaged in fifties

$1.39 each Qty. 400

$1.42 each Qty. 100

$1.45 ea, Qty 50

Maxell diskettes, boxed in tens

	50+	100+
3½" SS	1.59	1.49
3½" DS	2.59	2.49
5¼" SS/DD	.99	.89
5¼" DS/DD	1.39	1.29
5¼" HD	2.79	2.69

XIDEX

	50+	100+
5¼" SS/DD	60¢	55¢
5¼" DS/DD	65¢	60¢

3M

5¼" DS/DD	$1.07	$1.05

MEMOREX

5¼" SS/DD	$.78	$.73
5¼" DS/DD	$.94	$.89

Verbatim DataLife

5¼" DS/DD	$1.09	$1.07

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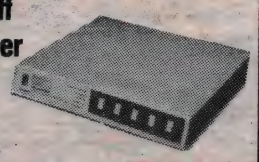

$74.99

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Provides clean power to guard against:

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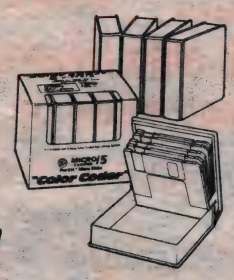
- Erratic data displays and printouts
- Unwarranted shutdown of peripherals
- Irreparable circuitry damage

RV 250, rated 250 VA $104.99
RV 550, rated 550 VA $232.99

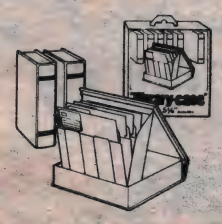
LIBRARY CASES

SRW

Each 3½" case holds five disks, includes spine and user labels
5 PAK (one each red, yellow, blue, green, grey)
$6.99 *(That's less than $1.40 each)*

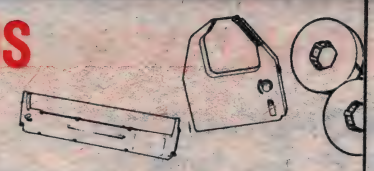


Each 5¼" case holds ten disks and includes spine labels.
Many colors, each .. $2.99
5 PAK $12.99



RIBBONS

in sizes



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Epson MX 70/80	2.45 ea
Epson MX 100	3.20 ea
Epson LX 80	3.20 ea
Epson LQ 1500	3.45 ea
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APPLE IMAGEWRITER - COLOR	$3.19 ea
NEC Spinwriter	5.29 ea
Diablo Hytype II	3.19 ea
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Okidata Micro 182/192	4.95 ea
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Packed in fives

DC2000	17.19	DC100A	11.89
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DC600HC	23.69	DC300XLP	18.80
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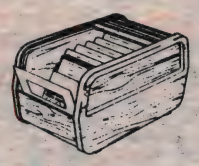
NEW DECADE II

20 Megabyte cassettes for Genoa and Memtek tape back-up systems.

$14.95 *Quantity discounts available*

ROLLTOPS GENUINE TEAK



Get real wood for the price of most plastic files!

Holds 50 3½" disks 19.99
Holds 50 5¼" disks 25.99
Holds 100 5¼" disks 34.49

THE ORIGINAL ROLLTOP**

Classic design holds 50 3½" disks or 120 5¼", with dividers and labels.

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**Buff and oak finish

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Wall, desk or flange mount.
$88.00 (Retails for $99.95)

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Fits large CRT's, eliminates eye strain and neck craning.
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Reinforced steel platform, tucks keyboard away when not in use.
$71.99 (Retails for $89.95)
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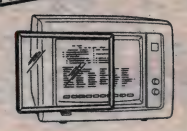

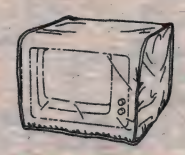

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IBM mono	$12.99
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Epson 80	$9.99
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Protects both CPU and CRT $24.99

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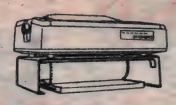

PRINTER STAND

Reinforced steel, baked enamel finish

For 8½" paper	$24.95
For 14⅞" paper	$28.95

SECURITY ALARM

Motion detector prevents theft $79.95

COPY II PC OPTION BOARD

The best way to make arcnival backups of protected software!

- Add-in board
- Gives you same capabilities as most disk duplication firms
- Includes track editor
- Uses one full size slot

$89.00

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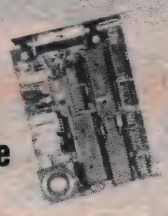
PC PRODUCTS

"smalltalk"™
SHORT CARD MODEM



- 100% Hayes compatible
- True short slot modem
- Easy to install ■ Five year warranty
- Made in the USA
- Single keystroke commands throughout, 18 number dialing table
- Auto dial to Dow Jones and The Source

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FULLY HAYES COMPATIBLE **$159.00**

ZUCKERBOARD
COLOR GRAPHICS SHORT CARD
■ Parallel printer port ■ Two year warranty ■ Made in the USA

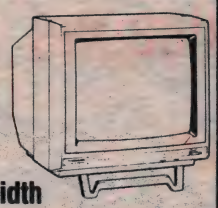
$89.00

BOTH HAVE PARALLEL PORT

MONO GRAPHICS CARD
- IBM and HERCULES Compatible
- Parallel printer port
- Two year warranty
- Made in the USA

$99.00

MAGNAVOX MONITORS



MONOCHROME
- 12" monochrome TTL
- 22 MHZ amplifier bandwidth
- 1000 lines horizontal resolution
- 350 lines vertical resolution
- Built-in tilt stand

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- 14" RGB, TTL and Composite input
- 640 dots resolution (RGB) horizontal
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- Green text display switch ■ Audio input
- Cables for Atari, Commodore, IBM, and compatibles include **$279.00**

20 MEG HARD DRIVE

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■ The only PC hard disk that comes complete, with cables, software, controller, mounting hardware and full and ½ height bezels in one box.
■ Fully tested and warranted for one year
■ Installation software included
■ MADE IN THE USA
■ Controller and drive are fully tested, together! **$495.00**

10 to 120 MEG AVAILABLE
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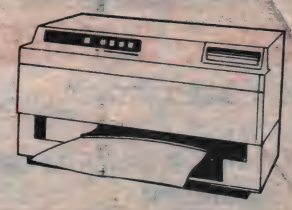
LASER PRINTERS
Canon

■ SUPER FAST
■ SUPER QUIET
■ SUPER SMALL



SUPER PRICE . . .
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HEWLETT PACKARD
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Parallel and Serial interface included **$2295.00**

LASERJET PLUS	$3995.00
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Font cartridges From 7.5 to 16 point	$199.00 ea.
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6' DB 25-pin male to 36-pin Centronics male D Adapts IBM & compatibles to Centronics parallel printer	$11.95
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20 Meg Internal Tape Back-Up

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Includes: software, cables, controller card, drive and one data cassette.

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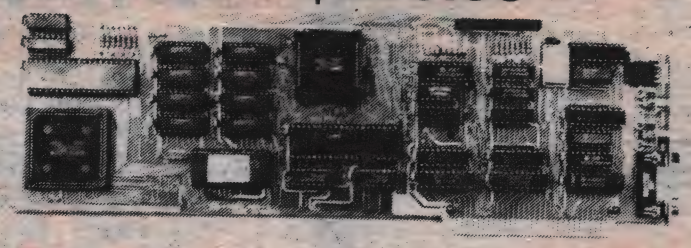
ENHANCED GRAPHICS ADAPTOR $295.00

100% IBM COMPATIBLE—PASSES IBM EGA DIAGNOSTICS



- COMPATIBLE WITH IBM EGA, COLOR GRAPHICS ADAPTOR AND MONOCHROME ADAPTOR
- DISPLAYS 16 COLORS OUT OF 64 COLORS
- COMES WITH 256K OF VIDEO RAM
- DUAL SCANNING FREQUENCIES—WORKS WITH STANDARD OR EGA TYPE RGB MONITORS
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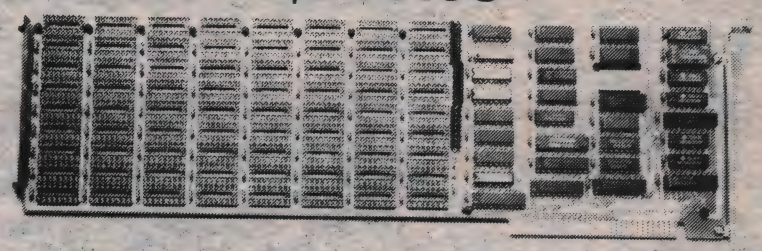
EXPANDED MEMORY CARD $199.95

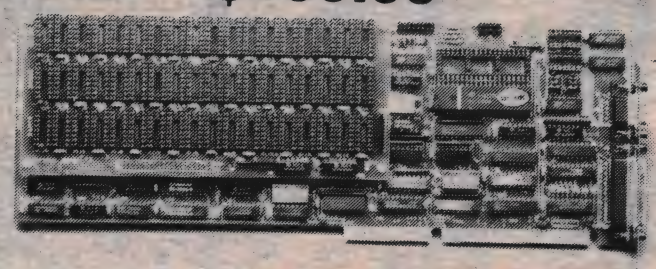
UP TO 2 MEGABYTES OF LOTUS/INTEL COMPATIBLE MEMORY



- CONFORMS TO LOTUS/INTEL EXPANDED MEMORY SPECIFICATIONS (EMS)
- SHIPPED WITH ZERO K RAM, USER EXPANDABLE TO 2 MEGABYTES
- USES 64K OR 256K DYNAMIC RAMS
- USE AS EXTENDED (EMS) OR CONVENTIONAL MEMORY, RAMDISK OR SPOOLER
- SOFTWARE INCLUDES EMS DEVICE DRIVERS, PRINT SPOOLER AND RAMDISK

AT MULTIFUNCTION CARD $199.95

ADDS UP TO 3 MEGABYTES OF USER EXPANDABLE MEMORY

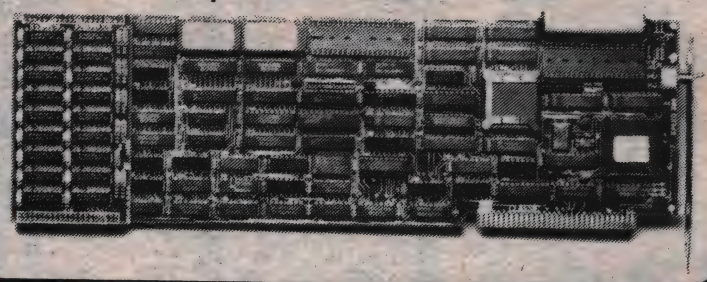


- SHIPPED WITH ZERO K RAM, USER EXPANDABLE TO 1.5 MEGABYTES RAM ON BOARD, UP TO 3 MEGABYTES WITH OPTIONAL PIGGYBACK CARD
- USES 64K OR 256K DYNAMIC RAMS
- PARALLEL PORT & GAME PORT
- SERIAL PORT
- OPTIONAL SECOND SERIAL PORT

PIGGYBACK MEMORY CARD (NO MEMORY INSTALLED) **$49.95**

CLASSIC 286 SPEED PAK $795.00

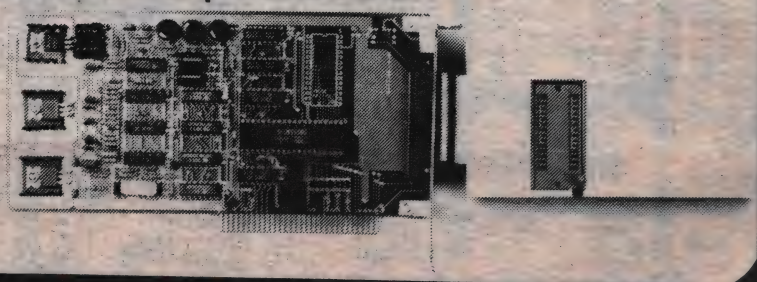
8 MHz 80286 ACCELERATOR BOARD FOR IBM PC/XT



- 8MHz 80286 RUNS 33% FASTER THAN A STANDARD AT
- RUNS AT PROGRAMS—COMPATIBLE WITH DOS 2.1, 3.0 & 3.1
- COMPATIBLE WITH ALL PC/XT HARDWARE & SOFTWARE WITH NO PATCHES OR MODIFICATIONS NEEDED
- 1 MEGABYTE MEMORY ON BOARD, EXPANDABLE TO 16MB
- HIGH SPEED 16-BIT BIOS AND RAM
- OPTIONS INCLUDE 80287 MATH CO-PROCESSOR, MULTITASKING SUPPORT AND MULTIUSER SUPPORT

EPROM PROGRAMMER $129.95

FOR IBM PC/XT/AT AND COMPATIBLES



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5101	256x4	(450ns)(CMOS)	3.95
2102L-4	1024x1	(450ns)(LP)	.99
2112	256x4	(450ns)	2.99
2114	1024x4	(450ns)	.99
2114L-4	1024x4	(450ns)(LP)	1.09
2114L-2	1024x4	(200ns)(LP)	1.49
2114L-15	1024x4	(150ns)(LP)	1.95
TMS4044-4	4096x1	(450ns)	1.95
TMM2016-150	2048x8	(150ns)	1.49
TMM2016-100	2048x8	(100ns)	1.95
HM6116-4	2048x8	(200ns)(CMOS)	1.39
HM6116-3	2048x8	(150ns)(CMOS)	1.49
HM6116LP-4	2048x8	(200ns)(CMOS)(LP)	1.49
HM6116LP-3	2048x8	(150ns)(CMOS)(LP)	1.59
HM6116LP-2	2048x8	(120ns)(CMOS)(LP)	2.95
HM6264P-15	8192x8	(150ns)(CMOS)	3.89
HM6264LP-15	8192x8	(150ns)(CMOS)(LP)	3.95
HM6264LP-12	8192x8	(120ns)(CMOS)(LP)	4.49

LP=Low power

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4116-150	16384x1	(150ns)	.89
4116-120	16384x1	(120ns)	1.49
MK4332	32768x1	(200ns)	6.95
4164-200	65536x1	(200ns)(5v)	1.19
4164-150	65536x1	(150ns)(5v)	1.29
4164-120	65536x1	(120ns)(5v)	1.95
MCM6665	65536x1	(200ns)(5v)	1.95
TMS4164	65536x1	(150ns)(5v)	1.95
4164-REFRESH	65536x1	(150ns)(5V)(REFRESH)	2.95
TMS4416	16384x4	(150ns)(5v)	4.95
41128-150	131072x1	(150ns)(5v)	5.95
TMS4464-15	65536x4	(150ns)(5v)	6.95
41256-200	262144x1	(200ns)(5v)	2.95
41256-150	262144x1	(150ns)(5v)	2.95

5v=Single 5 Volt Supply REFRESH=Pin 1 Refresh

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TMS2532	4096x8	(450ns)(5V)	3.95
2732	4096x8	(450ns)(5V)	3.89
2732A	4096x8	(250ns)(5V)(21V PGM)	3.95
2732A-2	4096x8	(200ns)(5V)(21V PGM)	4.25
27C64	8192x8	(250ns)(5V)(CMOS)	5.95
2764	8192x8	(450ns)(5V)	3.49
2764-250	8192x8	(250ns)(5V)	3.95
2764-200	8192x8	(200ns)(5V)	4.25
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27256	32768x8	(250ns)(5V)	7.49

5V=Single 5 Volt Supply 21V PGM=Program at 21 Volts

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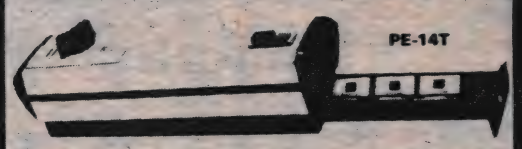

Model	Timer	Capacity Chip	Intensity (uW/Cm²)	Unit Price
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PE-14T	YES	9	8,000	$119.00
PE-24T	YES	12	9,600	$175.00

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8080	2.95
8085	2.49
8087-2	169.95
8087	129.00
8088	6.95
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8155-2	3.95
8748	7.95
8755	19.95
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8203	29.95
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8212	1.49
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8237	4.95
8237-5	5.49
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8253-5	1.95
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1.0 MHz

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6520	1.95
6522	4.95
6526	26.95
6532	6.95
6545	6.95
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6520A	2.95
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6502B	6.95

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6840	6.95
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6845	4.95
6847	11.95
6850	1.95
6883	22.95

2.0 MHz

68B00	4.95
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68B09	6.45
68B21	3.50
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74LS01	.18	74LS166	.95
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74LS04	.16	74LS174	.39
74LS05	.18	74LS175	.39
74LS08	.18	74LS191	.49
74LS09	.18	74LS192	.69
74LS10	.16	74LS193	.69
74LS11	.22	74LS194	.69
74LS12	.22	74LS195	.69
74LS13	.26	74LS196	.59
74LS14	.39	74LS197	.59
74LS15	.26	74LS221	.59
74LS20	.17	74LS240	.69
74LS21	.22	74LS241	.69
74LS22	.22	74LS242	.69
74LS27	.23	74LS243	.69
74LS28	.26	74LS244	.69
74LS30	.17	74LS245	.79
74LS32	.18	74LS251	.49
74LS33	.28	74LS253	.49
74LS37	.26	74LS256	1.79
74LS38	.26	74LS257	.39
74LS42	.39	74LS258	.49
74LS47	.59	74LS259	1.29
74LS48	.69	74LS260	.49
74LS51	.17	74LS266	.39
74LS73	.29	74LS273	.79
74LS74	.24	74LS279	.39
74LS75	.29	74LS280	1.98
74LS76	.29	74LS283	.59
74LS83	.49	74LS290	.89
74LS85	.49	74LS293	.89
74LS86	.22	74LS299	1.49
74LS90	.39	74LS322	3.95
74LS92	.49	74LS323	2.49
74LS93	.39	74LS364	1.95
74LS95	.49	74LS365	.39
74LS107	.34	74LS367	.39
74LS109	.36	74LS368	.39
74LS112	.29	74LS373	.79
74LS122	.45	74LS374	.79
74LS123	.49	74LS375	.95
74LS124	2.75	74LS377	.79
74LS125	.39	74LS378	1.18
74LS126	.39	74LS390	1.19
74LS132	.39	74LS393	.79
74LS133	.49	74LS541	1.49
74LS136	.39	74LS624	1.95
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74LS155	.59	74LS783	22.95
74LS156	.49	81LS95	1.49
74LS157	.36	81LS96	1.49
74LS158	.29	81LS97	1.49
74LS160	.29	81LS98	1.49
74LS161	.39	25LS2521	2.80
74LS162	.49	25LS2569	2.80
74LS163	.39	26LS31	1.95
74LS164	.49	26LS32	1.95

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74HC10	.59	74HC158	.95
74HC14	.79	74HC163	1.15
74HC20	.59	74HC175	.99
74HC27	.59	74HC240	1.89
74HC30	.59	74HC244	1.89
74HC32	.69	74HC245	1.89
74HC51	.59	74HC257	.85
74HC74	.75	74HC259	1.39
74HC85	1.35	74HC273	1.89
74HC86	.69	74HC299	4.99
74HC93	1.19	74HC368	.99
74HC107	.79	74HC373	2.29
74HC109	.79	74HC374	2.29
74HC112	.79	74HC390	1.39
74HC125	1.19	74HC393	1.39
74HC132	1.19	74HC4017	1.99
74HC133	.69	74HC4020	1.39
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74HCT04	.69	74HCT193	1.39
74HCT08	.69	74HCT194	1.19
74HCT10	.69	74HCT240	2.19
74HCT11	.69	74HCT241	2.19
74HCT27	.69	74HCT244	2.19
74HCT30	.69	74HCT245	2.19
74HCT32	.79	74HCT257	.99
74HCT74	.85	74HCT259	1.59
74HCT75	.95	74HCT273	2.09
74HCT138	1.15	74HCT367	1.09
74HCT139	1.15	74HCT373	2.49
74HCT154	2.99	74HCT374	2.49
74HCT157	.99	74HCT393	1.59
74HCT158	.99	74HCT4017	2.19
74HCT161	1.29	74HCT4040	1.59
74HCT164	1.39	74HCT4060	1.49

74F00

74F00	.69	74F74	.79	74F251	1.69
74F02	.69	74F86	.99	74F253	1.69
74F04	.79	74F138	1.69	74F257	1.69
74F08	.69	74F139	1.69	74F280	1.79
74F10	.69	74F157	1.69	74F283	3.95
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4020	.59	4527	1.95
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4027	.39	4538	.95
4028	.65	4541	1.29
4035	.69	4553	5.79
4040	.69	4585	.75
4041	.75	4702	12.95
4042	.59	74C00	.29
4043	.85	74C14	.59
4044	.69	74C74	.59
4045	1.98	74C83	1.95
4046	.69	74C85	1.49
4047	.69	74C95	.99
4049	.29	74C150	5.75
4050	.29	74C151	2.25
4051	.69	74C161	.99
4052	.69	74C163	.99
4053	.69	74C164	1.39
4056	2.19	74C192	1.49
4060	.69	74C193	1.49
4066	.29	74C221	1.75
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4076	.59	74C244	1.89
4077	.29	74C374	1.99
4081	.22	74C905	10.95
4085	.79	74C911	8.95
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4093	.49	74C922	4.49
4094	2.49	74C923	4.95
14411	9.95	74C926	7.95
14412	6.95	80C97	.95

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7400	.19	74147	2.49
7402	.19	74148	1.20
7404	.19	74150	1.35
7406	.29	74151	.55
7407	.29	74153	.55
7408	.24	74154	1.49
7410	.19	74155	.75
7411	.25	74157	.55
7414	.49	74159	1.65
7416	.25	74161	.69
7417	.25	74163	.69
7420	.19	74164	.85
7423	.29	74165	.85
7430	.19	74166	1.00
7432	.29	74175	.89
7438	.29	74177	.75
7442	.49	74178	1.15
7445	.69	74181	2.25
7447	.89	74182	.75
7470	.35	74184	2.00
7473	.34	74191	1.15
7474	.33	74192	.79
7475	.45	74194	.85
7476	.35	74196	.79
7483	.50	74197	.75
7485	.59	74199	1.35
7486	.35	74221	1.35
7489	2.15	74246	1.35
7490	.39	74247	1.25
7492	.50	74248	1.85
7493	.35	74249	1.95
7495	.55	74251	.75
7497	2.75	74265	1.35
74100	2.29	74273	1.95
74121	.29	74278	3.11
74123	.49	74367	.65
74125	.45	74368	.65
74141	.65	9368	3.95
74143	5.95	9602	1.50
74144	2.95	9637	2.95
74145	.60	96S02	1.95

74S00

74S00	.29	74S163	1.29
74S02	.29	74S168	3.95
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74S15	.35	74S196	1.49
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74S74	.49	74S244	1.49
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74S157	.79	74S374	1.69
74S158	.95	74S471	4.95
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7808T	.49	7908T	.59
7812T	.49	7912T	.59
7815T	.49	7915T	.59

TO-3 CASE

7805K	1.39	7905K	1.49
7812K	1.39	7912K	1.49

TO-92 CASE

78L05	.49	79L05	.69
78L12	.49	79L12	.69

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LM323K	5V 3A	TO-3	4.79
LM338K	Adj 5A	TO-3	3.95
78H05K	5V 5A	TO-3	7.95
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78P05K	5V 10A	TO-3	14.95

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TL071	.69	LM741	.29
TL072	1.09	LM747	.69
TL074	1.95	LM748	.59
TL081	.59	MC1330	1.69
TL082	.99	MC1350	1.19
TL084	1.49	MC1372	6.95
LM301	.34	LM1414	1.59
LM309K	1.25	LM1458	.49
LM311	.59	LM1488	.49
LM311H	.89	LM1489	.49
LM317K	3.49	LM1496	.85
LM317T	.95	LM1812	8.25
LM318	1.49	LM1889	1.95
LM319	1.25	ULN2003	.79
LM320	see7900	XR2206	3.75
LM322	1.65	XR2211	2.95
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LM331	3.95	LM2917	1.95
LM334	1.19	CA3046	.89
LM335	1.40	CA3081	.99
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LM338K	3.95	CA3089	1.95
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LM350T	4.60	CA3160	1.19
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LF357	.99	MC3487	2.95
LM358	.59	LM3900	.49
LM380	.89	LM3909	.98
LM383	1.95	LM3911	2.25
LM386	.89	LM3914	2.39
LM393	.45	MC4024	3.49
LM394H	4.60	MC4044	3.99
TL494	4.20	RC4136	1.25
TL497	3.25	RC4558	.69
NE555	.29	LM13600	1.49
NE556	.49	75107	1.49
NE558	1.29	75110	1.95
NE564	1.95	75150	1.95
LM565	.95	75154	1.95
LM566	1.49	75188	1.25
LM567	.79	75189	1.25
NE570	2.95	75451	.39
NE590	2.50	75452	.39
NE592	.98	75453	.39
LM710	.75	75477	1.29
LM723	.49	75492	.79

H=TO-5 CAN, K=TO-3, T=TO-220

IC SOCKETS

	1-99	100
8 PIN ST	.11	.10
14 PIN ST	.11	.09
16 PIN ST	.12	.10
18 PIN ST	.15	.13
20 PIN ST	.18	.15
22 PIN ST	.15	.12
24 PIN ST	.20	.15
28 PIN ST	.22	.16
40 PIN ST	.30	.22
64 PIN ST	1.95	1.49
ST=SOLDERTAIL		
8 PIN WW	.59	.49
14 PIN WW	.69	.52
16 PIN WW	.69	.58
18 PIN WW	.99	.90
20 PIN WW	1.09	.98
22 PIN WW	1.39	1.28
24 PIN WW	1.49	1.35
28 PIN WW	1.69	1.49
40 PIN WW	1.99	1.80
WW=WIREWRAP		
16 PIN ZIF	4.95	CALL
24 PIN ZIF	5.95	CALL
28 PIN ZIF	6.95	CALL
40 PIN ZIF	9.95	CALL
ZIF=TEXTOOL (ZERO INSERTION FORCE)		

DATA ACQ

ADC0800	15.55	8T26	1.29
ADC0804	3.49	8T28	1.29
ADC0809	4.49	8T95	.89
ADC0816	14.95	8T96	.89
ADC0817	9.95	8T97	.59
ADC0831	8.95	8T98	.89
DAC0800	4.49	DM8131	2.95
DAC0806	1.95	DP8304	2.29
DAC0808	2.95	DS8833	2.25
DAC1020	8.25	DS8835	1.99
DAC1022	5.95	DS8836	.99
MC1408L8	2.95	DS8837	1.65

INTERFACE

1CL7106	9.95		
ICL7107	12.95		
ICL7660	2.95		
ICL8038	4.95		
ICM7207A	5.95		
ICM7208	15.95		

EDGECARD CONNECTORS

100 PIN	ST	S-100	.125	3.95
100 PIN	WW	S-100	.125	4.95
62 PIN	ST	IBM PC	.100	1.95
50 PIN	ST	APPLE	.100	2.95
44 PIN	ST	STD	.156	1.95
44 PIN	WW	STD	.156	4.95

36 PIN CENTRONICS

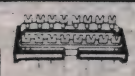
	MALE	
IDCEN36	RIBBON CABLE	6.95
CEN36	SOLDER CUP	4.95
	FEMALE	
IDCEN36/F	RIBBON CABLE	7.95
CEN36PC	RT ANGLE PC MOUNT	4.95

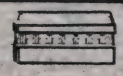
INTERSIL

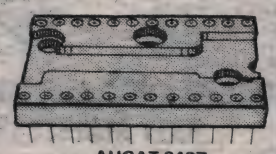
ICL7106	9.95
ICL7107	12.95
ICL7660	2.95
ICL8038	4.95
ICM7207A	5.95
ICM7208	15.95

DIP CONNECTORS

DESCRIPTION	ORDER BY	CONTACTS 8	14	16	18	20	22	24	28	40
HIGH RELIABILITY TOOLED ST IC SOCKETS	AUGATxxST	.62	.79	.89	1.09	1.29	1.39	1.49	1.69	2.49
HIGH RELIABILITY TOOLED WW IC SOCKETS	AUGATxxWW	1.30	1.80	2.10	2.40	2.50	2.90	3.15	3.70	5.40
COMPONENT CARRIES (DIP HEADERS)	ICCxx	.49	.59	.69	.99	.99	.99	.99	1.09	1.49
RIBBON CABLE DIP PLUGS (IDC)	IDPxx	---	.95	.95	---	---	---	1.75	---	2.95


ICC16


IDP14


AUGAT 24ST

FOR ORDERING INSTRUCTIONS SEE D-SUBMINIATURE BELOW

D-SUBMINIATURE

DESCRIPTION		ORDER BY	CONTACTS 9	15	19	25	37	50
SOLDER CUP	MALE	DBxxP	.82	.90	1.25	1.25	1.80	3.48
	FEMALE	DBxxS	.95	1.15	1.50	1.50	2.35	4.32
RIGHT ANGLE PC SOLDER	MALE	DBxxPR	1.20	1.49	---	1.95	2.65	---
	FEMALE	DBxxSR	1.25	1.55	---	2.00	2.79	---
WIRE WRAP	MALE	DBxxPWW	1.69	2.56	---	3.89	5.60	---
	FEMALE	DBxxSWW	2.76	4.27	---	6.84	9.95	---
IDC RIBBON CABLE	MALE	IDBxxP	2.70	2.95	---	3.98	5.70	---
	FEMALE	IDBxxS	2.92	3.20	---	4.33	6.76	---
HOODS	METAL	MHOODxx	1.25	1.25	1.30	1.30	---	---
	GREY	HOODxx	.65	.65	---	.65	.75	.95

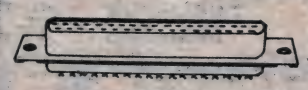
ORDERING INSTRUCTIONS: INSERT THE NUMBER OF CONTACTS IN THE POSITION MARKED "xx" OF THE "ORDER BY" PART NUMBER LISTED.

EXAMPLE: A 15 PIN RIGHT ANGLE MALE PC SOLDER WOULD BE DB15PR.

MOUNTING HARDWARE $1.00

MTG HDWR

HOOD25


DB37S

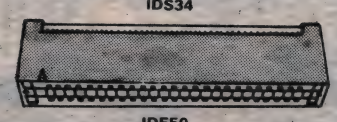
IDB37S

IDC CONNECTORS

DESCRIPTION	ORDER BY	CONTACTS 10	20	26	34	40	50
SOLDER HEADER	IDHxxS	.82	1.29	1.68	2.20	2.58	3.24
RIGHT ANGLE SOLDER HEADER	IDHxxSR	.85	1.35	1.76	2.31	2.72	3.39
WW HEADER	IDHxxW	1.86	2.98	3.84	4.50	5.28	6.63
RIGHT ANGLE WW HEADER	IDHxxWR	2.05	3.28	4.22	4.45	4.80	7.30
RIBBON HEADER SOCKET	IDSxx	.79	.99	1.39	1.59	1.99	2.25
RIBBON HEADER	IDMxx	---	5.50	6.25	7.00	7.50	8.50
RIBBON EDGE CARD	IDExx	1.75	2.25	2.65	2.75	3.80	3.95

FOR ORDERING INSTRUCTIONS SEE D-SUBMINIATURE ABOVE

IDS34


IDE50

DIODES/OPTO/TRANSISTORS

1N751	.25	4N26	.69
1N759	.25	4N27	.69
1N4148	25/1.00	4N28	.69
1N4004	10/1.00	4N33	.89
1N5402	.25	4N37	1.19
KBP04	.55	MCT-2	.59
KBU8A	.95	MCT-6	1.29
MDA990-2	.35	TIL-111	.99
N2222	.25	2N3906	.10
PN2222	.10	2N4401	.25
2N2905	.50	2N4402	.25
2N2907	.25	2N4403	.25
2N3055	.79	2N6045	1.75
2N3904	.10	TIP31	.49

LED DISPLAYS

FND-357(359)	COM	CATHODE	.362"	1.25
FND-500(503)	COM	CATHODE	.5"	1.49
FND-507(510)	COM	ANODE	.5"	1.49
MAN-72	COM	ANODE	.3"	.99
MAN-74	COM	CATHODE	.3"	.99
MAN-8940	COM	CATHODE	.8"	1.99
TIL-313	COM	CATHODE	.3"	.45
HP5082-7760	COM	CATHODE	.43"	1.29
TIL-311	4x7	HEX W/LOGIC	.270"	9.95
HP5082-7340	4x7	HEX W/LOGIC	.290"	7.95

DIFFUSED LEDS

		1-99	100-UP
JUMBO RED	T1¾	.10	.09
JUMBO GREEN	T1¾	.14	.12
JUMBO YELLOW	T1¾	.14	.12
MOUNTING HDW	T1¾	.10	.09
MINI RED	T1	.10	.09

SWITCHES

SPST	MINI-TOGGLE ON-ON	1.25
DPDT	MINI-TOGGLE ON-ON	1.50
DPDT	MINI-TOGGLE ON-OFF-ON	1.75
SPST	MINI-PUSHBUTTON N.O.	.39
SPST	MINI-PUSHBUTTON N.C.	.39
SPST	TOGGLE ON-OFF	.49
BCD OUTPUT 10 POSITION 6 PIN DIP		1.95

DIP SWITCHES

4 POSITION	.85	7 POSITION	.95
5 POSITION	.90	8 POSITION	.95
6 POSITION	.90	10 POSITION	1.29

RIBBON CABLE

CONTACTS	SINGLE COLOR 1'	10'	COLOR CODED 1'	10'
10	.18	1.60	.30	2.75
16	.28	2.50	.48	4.40
20	.36	3.20	.60	5.50
25	.45	4.00	.75	6.85
26	.46	4.10	.78	7.15
34	.61	5.40	1.07	9.35
40	.72	6.40	1.20	11.00
50	.89	7.50	1.50	13.25

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CAN BE SNAPPED APART TO MAKE ANY SIZE HEADER, ALL WITH .1" CENTERS

1x40	STRAIGHT LEAD	.99
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2x40	STRAIGHT LEAD	2.49
2x40	RIGHT ANGLE	2.99

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5/$1.00

It was a pleasure to place an order with your people. I found the response pleasant and helpful and the answers prompt and correct. The delivery on my most recent order was fast, correct and well packed. I already had faith in the quality since my family has been using some of your products for several years with no problems.

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PLASTIC HOOD FOR DB25

IDE34 100/$129 10/$14.90
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AUGAT 16WW 100/$49 10/$6.90
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1uf 16 VOLT CERAMIC DISC CAPACITORS

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6 FOOT LINE CORDS

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LC-3	3 CONDUCTOR	.99
LC-HP	3 CONDUCTOR W STD FEMALE SOCKET	1.49

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3.63" SQ	ETRI	14.95
3.18" SQ	MASUSHITA	16.95

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FR-4 EPOXY GLASS LAMINATE
WITH GOLD-PLATED EDGE-CARD FINGERS

IBM-PR2

IBM
BOTH CARDS HAVE SILK SCREENED LEGENDS AND INCLUDES MOUNTING BRACKET

IBM-PR1	WITH +5V AND GROUND PLANE	$27.95
IBM-PR2	AS ABOVE WITH DECODING LAYOUT	$29.95

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P100-1	BARE - NO FOIL PADS	$15.15
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P100-3	VERTICAL BUS	$21.80
P100-4	SINGLE FOIL PADS PER HOLE	$22.75

APPLE

P500-1	BARE - NO FOIL PADS	$15.15
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7060-45	FOR APPLE IIe AUX SLOT	$30.00

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- SLIPS OVER WIRE WRAP PINS
- IDENTIFIES PIN NUMBERS ON WRAP SIDE OF BOARD
- CAN WRITE ON PLASTIC; SUCH AS IC #

PINS	PART#	PCK. OF	PRICE
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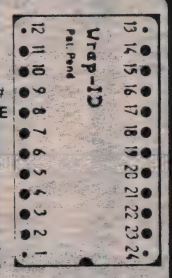
14	IDWRAP 14	10	1.95
16	IDWRAP 16	10	1.95
18	IDWRAP 18	5	1.95
20	IDWRAP 20	5	1.95
22	IDWRAP 22	5	1.95
24	IDWRAP 24	5	1.95
28	IDWRAP 28	5	1.95
40	IDWRAP 40	5	1.95

PLEASE ORDER BY NUMBER OF PACKAGES (PCK. OF)



ID WRAP 24

FRAME STYLE TRANSFORMERS

12.6V AC CT	2 AMP	5.95
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PS-IBM $89.95
- FOR IBM PC-XT COMPATIBLE
- 135 WATTS
- +5V @ 15A, +12V @ 4.2A -5V @ .5A, -12V @ .5A
- ONE YEAR WARRANTY

PS-IBM

PS-IBM-150 $99.95
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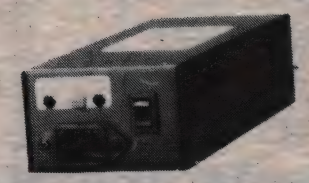
- 150 WATTS
- +12V @ 5.2A, +5V @ 16A -12V @ .5A, -5V @ .5A
- ONE YEAR WARRANTY

PS-130

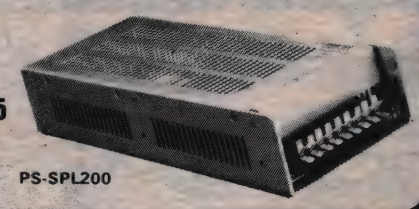
PS-130 $99.95
- 130 WATTS
- SWITCH ON REAR
- FOR USE IN OTHER IBM TYPE MACHINES
- 90 DAY WARRANTY

PS-A



PS-A $49.95
- USE TO POWER APPLE TYPE SYSTEMS
- +5V @ 4A, +12V @ 2.5A -5V @ .5A, -12V @ .5A
- APPLE POWER CONNECTOR

PS-SPL200



PS-SPL200 $49.95
- +5V @ 25A, +12V @ 3.5A -5V @ 1A, -12V @ 1A
- UL APPROVED
- ALUMINUM ENCLOSURE

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- ERASES 2 IN 10 MINUTES
- COMPACT-NO DRAWER
- THIN METAL SHUTTER PREVENTS UV LIGHT FROM ESCAPING

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TANTALUM

1.0µf	15V	.35	.47µf	35V	.45
6.8	15V	.70	1.0	35V	.45
10	15V	.80	2.2	35V	.65
22	15V	1.35	4.7	35V	.85
.22	35V	.40	10	35V	1.00

DISC

10pf	50V	.05	680	50V	.05
22	50V	.05	.001µf	50V	.05
27	50V	.05	.0022	50V	.05
33	50V	.05	.005	50V	.05
47	50V	.05	.01	50V	.07
68	50V	.05	.02	50V	.07
100	50V	.05	.05	50V	.07
220	50V	.05	.1	12V	.10
560	50V	.05	.1	50V	.12

MONOLITHIC

.01µf	50V	.14	.1µf	50V	.18
.047µf	50V	.15	.47µf	50V	.25

ELECTROLYTIC

	RADIAL			AXIAL	
1µf	25V	.14	1µf	50V	.14
2.2	35V	.15	10	50V	.16
4.7	50V	.15	22	16V	.14
10	50V	.15	47	50V	.20
47	35V	.18	100	35V	.25
100	16V	.18	220	25V	.30
220	35V	.20	470	50V	.50
470	25V	.30	1000	16V	.60
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DIP	16 PIN	15 RESISTOR	1.09
DIP	14 PIN	7 RESISTOR	.99
DIP	14 PIN	13 RESISTOR	.99

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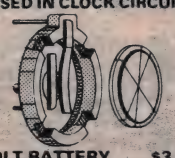
WBU-T	1.38 x 6.50"	---	---	1	630	---	6.95
WBU-204-3	3.94 x 8.45"	1	100	2	1260	2	17.95
WBU-204	5.13 x 8.45"	4	400	2	1260	3	24.95
WBU-206	6.88 x 9.06"	5	500	3	1890	4	29.95
WBU-208	8.25 x 9.45"	7	700	4	2520	4	39.95

WBU-208

LITHIUM BATTERY
AS USED IN CLOCK CIRCUITS



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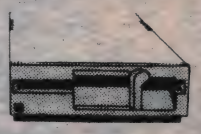

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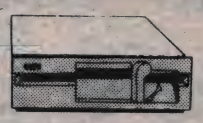
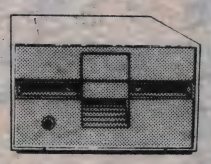
- 100% APPLE COMPATIBLE
- SIX MONTH WARRANTY

BAL-500 $129.95



- TEAC MECHANISM-DIRECT DRIVE
- 100% APPLE COMPATIBLE
- FULL ONE YEAR WARRANTY

AP-135 $129.95



- FULL HT SHUGART MECHANISM
- DIRECT REPLACEMENT FOR APPLE DISK II
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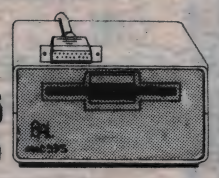
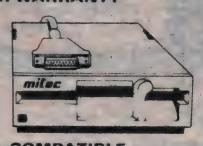


- 3.5" ADD-ON DISK DRIVE
- 100% MACINTOSH COMPATABLE
- DOUBLE SIDED 800K BYTE STORAGE
- HIGH RELIABILITY DRIVE HAS AUTO-EJECT MECHANISM
- FULL ONE YEAR WARRANTY

AD-3C $139.95



- 100% APPLE IIc COMPATIBLE, READY TO PLUG IN, W/SHIELDED CABLE & MOLDED 19 PIN CONNECTOR
- FAST, RELIABLE SLIMLINE DIRECT DRIVE
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FDD CONTROLLER CARD	$49.95
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- AUTO-REPEAT

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- REPLACEMENT FOR APPLE II KEYBOARD
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IBM-AT	$68.00
APPLE II	$45.00
APPLE IIe	$45.00
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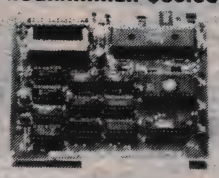
EPROM PROGRAMMER $59.95

MODEL RP525



- DUPLICATE OR BURN ANY STANDARD 27xx SERIES EPROM
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- LED INDICATORS FOR ACTIVITY
- NO EXTERNAL POWER SUPPLY NEEDED
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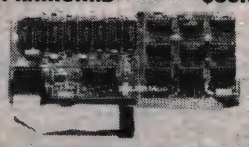

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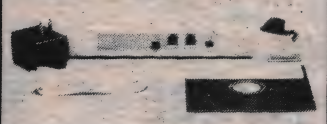
FOR APPLE OR IBM

INCLUDES ASCII PRO-EZ SOFTWARE



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- BELL SYSTEMS 103 COMPATIBLE
- INCLUDES AC ADAPTOR
- AUTO-DIAL
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CABLE FOR APPLE IIc $14.95

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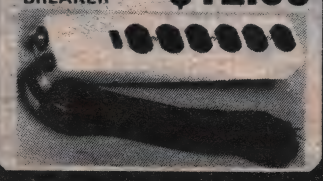

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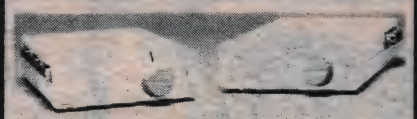

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- RESET FUNCTION CLEARS DATA IN BUFFER
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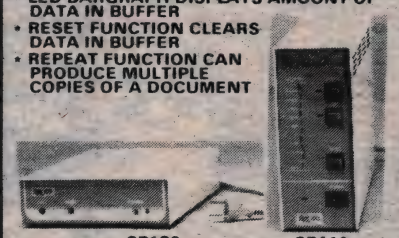

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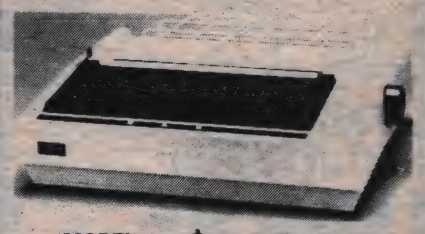

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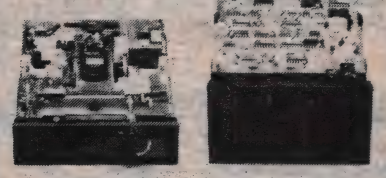

TEAC FD-55 TANDON TM100-2

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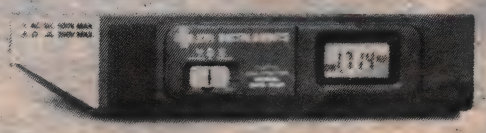

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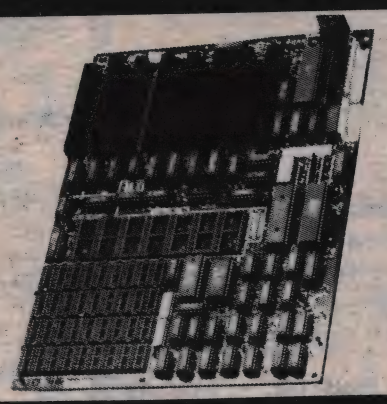

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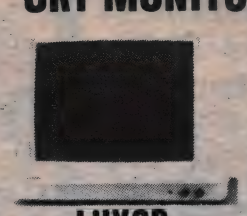

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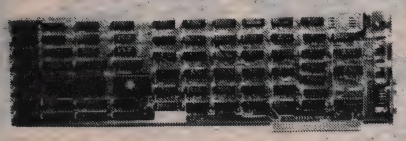

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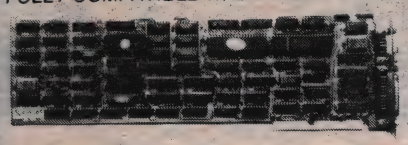

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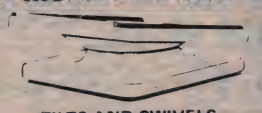

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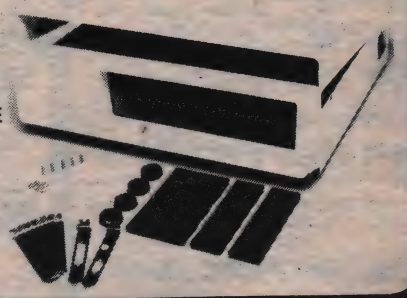

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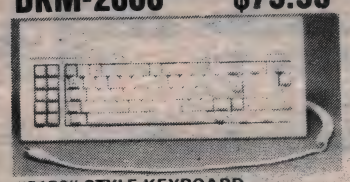

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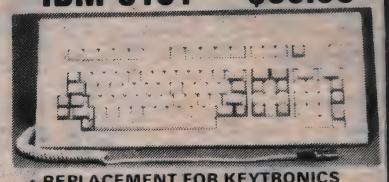

- REPLACEMENT FOR KEYTRONICS KB-5151™
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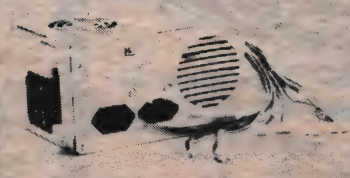
- CAPS LOCK & NUMBER LOCK INDICATORS
- IMPROVED KEYBOARD LAYOUT

POWER SUPPLY



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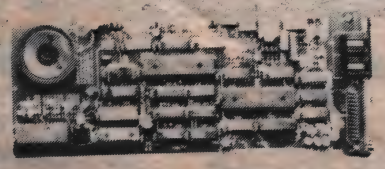

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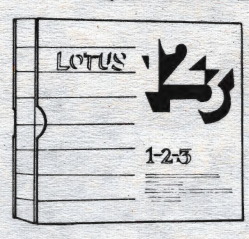

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